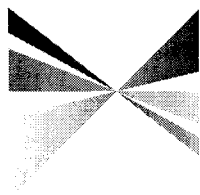


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**ASSOCIATION of
GOVERNMENTS**

Main Office

818 West Seventh Street
12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

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SSP/sj/24/05

MEETING of the

MAGLEV TASK FORCE

Thursday, February 9, 2006

11:00 a.m. – 1:00 p.m.

SCAG Offices

818 W. 7th Street, 12th Floor

Riverside B Conference Room

Los Angeles, California 90017

213. 236.1800

Agenda Enclosed

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If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact Pria Hidisyan at 213.236.1953 or hidisyan@scag.ca.gov.

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MAGLEV TASK FORCE

AGENDA

PAGE #

TIME

1. CALL TO ORDER

2. INTRODUCTIONS AND WELCOME **Hon. Robin Lowe, Chair**

3. PUBLIC COMMENT PERIOD

Members of the public wishing to speak on an agenda item or not on the agenda, but within the purview of this committee, must notify the Staff and fill out a speaker's card prior to speaking. Comments will be limited to three minutes. The Chair may limit the total time for comments to 20 minutes.

4. CONSENT CALENDAR

**4.1. Summary Minutes of the December 8, 2005
Task Force meeting.**

5. ACTION ITEMS

5.1. Approval of Technical Report on the Potential for Transit Oriented Development (attachment)	Brian Jackson, AICP Senior Associate, IBI Group
---	--

Recommended Action:
Approve Technical Report on the Potential for Transit Oriented Development.

5.2. Support Funding Options for Shanghai Maglev Trip	Hasan Ikhmeta, SCAG Director, Policy and Planning
--	--

Recommended Action:
**Support funding options for a fact-finding trip to Shanghai for a SCAG
delegation.**

6. INFORMATION ITEMS

6.1. Regional Aviation Strategy	Alan Thompson, SCAG Senior Regional Planner
--	--

7. OPEN DISCUSSION

Committee Members

Provide direction to staff on issues of interest for future discussion.

8. CHAIR'S REPORT

**Hon. Robin Lowe,
Chair**

9. NEXT MEETING

Thursday, March 9, 2006

Summary Minutes
MAGLEV TASK FORCE MEETING
Thursday, December 8, 2005

The Maglev Task Force of the Southern California Association of Governments held its meeting at the SCAG offices. The meeting was called to order by the Vice Chair Lou Bone, City of Tustin. There was a quorum.

1.0 CALL TO ORDER

Vice Chairman Lou Bone called the meeting to order.

2.0 INTRODUCTION

Vice Chairman Lou Bone conducted introductions and welcome of members and audience present at SCAG's Los Angeles and Riverside offices.

3.0 PUBLIC COMMENT PERIOD

3.1 Mr. Bart Reed, Transit Coalition

Mr. Reed posed several questions to the Task Force about Maglev's capabilities regarding energy requirements, goods movement, transit linkage compatibilities, airport connections and affordability.

Mr. David Chow of IBI Group and Mr. Reed Tanger of Transrapid International-USA responded to the questions. Mr. Tanger stated that the energy requirements are low relative to other transportation systems. Mr. Chow added that during IBI's meetings with Southern California Edison they were informed that the energy requirements of the system were very minimal.

3.2 Mr. Don Kornreich

Mr. Kornreich stated that he has done extensive research on Maglev. According to his analyses, Maglev will cost approximately \$150 to \$250 million per route mile. US DOT must provide a revolving fund for transit projects, including Maglev, with matching fund loans provided by MPOs. Mr. Kornreich asked for feedback on his analyses and research prior to sending it to Governors and Senators throughout the country in May 2006.

4.0 CONSENT CALENDAR

4.1 Minutes from the meeting of November 10, 2005 were approved.

5.0 ACTION ITEMS

5.1 Approval of Public Involvement Plan

Ms. Christine Robert introduced the Public Involvement Plan formulated by the Robert Group. The plan will identify stakeholders along the IOS and at potential station sites, conduct meetings with stakeholders, and provide accessible information to the public.

Mr. Bone stated that identifying station locations that are large enough will be a great challenge. Mr. Chow responded that some of the stations may not need to be as large if they are not multi-modal or providing connections to airports.

A motion was made to approve the Public Involvement Plan and was passed without objection.

5.2 Approval of Task 1 of Detailed Work Plan

Mr. Zahi Faranesh provided background on the revisions that are being made to the Detailed Work Plan of the Alternatives Analysis study. As of now, the Project Managers have agreed upon Task 1 - Review Available Plans and Data.

A motion was made to approve Task 1 of the Detailed Work Plan and was passed without objection.

6.0 INFORMATION ITEMS

6.1 The California Regional Maglev Project San Diego/Los Angeles (video)

Mr. Faranesh stated that Shapery Enterprises is working with SANDAG to develop a regional Maglev project. Shapery Enterprises created a video entitled "The California Regional Maglev Project San Diego/Los Angeles" which outlines the potentials of the technology and proposes a plan for connecting the various Maglev projects in Southern California.

6.2 Maglev and Goods Movement

Mr. Reed Tanger provided a status report on Transrapid International's activities in the US and abroad. Mr. Tanger showed a short video describing the Shanghai Maglev system. Mr. Bates asked about the system's daily ridership, which was about 11,000 per day in June 2005. Improved advertising and a recent extension of operating hours are expected to increase ridership further. Mr. Bone asked whether the pricing of the system had been settled. Mr. Tanger explained that the price level was reduced once since the opening of the system, and is now about \$5 each way, which is cheaper than the \$15 taxi cab ride from the airport to downtown. Mr. Bone asked how the VIP and standard class compare in ridership. Mr. Tanger did not have the data on hand, but had observed that the VIP class was less crowded, perhaps given that the ride is only 7 minutes. Ms. Cathy DeYoung inquired about the maximum length of the train. The maximum train set is 8 cars, each of which can be configured flexibly with a maximum of 100 seats per car.

Mr. Barnes noted the low traffic levels on the freeway. Mr. Tanger explained that the growth planning in Shanghai is very long term and plans are to quadruple the size of the airport. Mr. Bone asked whether maintenance records were available for the system. Mr. Tanger stated that the Chinese government chooses not to release that information. Mr. Bone also inquired about the role of the attendant at the front of the vehicle. Mr. Tanger stated that the system is entirely computer automated. Shanghai opted to place an attendant in the car who presses an "OK" button confirming that the doors have shut and the vehicle is ready, however an attendant is not necessary. Ms. DeYoung inquired about the system's cost. Mr. Tanger stated that the cost was approximately \$65 million per mile.

Mr. Tanger gave an update on the Munich project, which is anticipated to begin construction in 2007 with revenue service in 2011. New upgrades are underway to design vehicles for regional short distance applications as airport connectors. Mr. Bone noted that this would be the first commercial application in Germany, despite a test track that has been in place for over 20 years. Mr. Tanger explained that Germany has invested in high-speed service for decades, making it difficult to justify new infrastructure, despite superior technology, in corridors that already have service. However, the market need is different in China and the United States where comparable infrastructure does not exist.

Mr. Tanger provided brief updates on the various projects in the United States. He then presented two scenarios for using Maglev for freight service. First, standard vehicles are used with an express air-freight pallet configuration within. The second version is in the conceptual stage and would carry standard 40-foot sea-borne containers, single stack or double stack. Mr. Barnes asked whether the infrastructure costs would be the same to carry single stack sea-borne freight. Mr. Tanger responded that the same guideway would be used, but the infrastructure would have to be designed to handle the increased load. Mr. Lantz noted that the given the slower speed of 125 mph at which sea-borne cargo would travel off-peak hour operations would be necessary, otherwise passenger travel would be interrupted. Mr. Lantz asked whether TRI had found in any financial analyses whether moving freight with Maglev was an economically viable alternative. Mr. Tanger responded that they had not done such analyses.

7.0 OPEN DISCUSSION

No discussion.

8.0 CHAIR'S REPORT

No Chair's Report.

9.0 NEXT MEETING

January 12, 2006

**ATTENDANCE LIST
(FROM SIGN-IN SHEETS)**

Members Present:

Hon. Lou Bone, Vice Chair	City of Tustin
Mr. James McCarthy	Caltrans District 7
Hon. Christine Barnes	City of La Palma
Hon. Cathy DeYoung	City of Laguna Niguel
Mr. Steve Lantz	Metrolink

Guests:

Sharad Mulchand	MTA
David Chow	IBI Group
Gary Green	Caltrans District 8
Frank Sherkow	Aztec Engineering
Reed Tanger	Transrapid International – USA
Jack Sun	Transrapid International – USA
Don Kornreich	self
Numan Parada	The Transit Coalition
Bart Reed	The Transit Coalition
Miles Mitchell	LADOT
Chris Robert	The Robert Group
Guillermo Gonzalez	Office of U.S. Senator Feinstein
Rick Deming	Caltrans Division of Rail
*Tom Danna	City of Ontario
*Steve Smith	SANBAG
(*Attended via videoconference)	

SCAG Staff:

Zahi Faranesh
Pria Hidisyan
Anthony Piuanno

M E M O

ITEM 5.1

To: Maglev Task Force Members

From: Zahi Faranesh, SCAG

Date: February 9, 2006

RE: Approval of Technical Report on the Potential for Transit Oriented Development

RECOMMENDATION:

Review and approve the attached "Technical Report on the Potential for Transit Oriented Development – West Covina to Ontario Airport" for Phase 2 – Part 1. The report discusses the potential for Transit Oriented Development (TOD) adjacent to proposed stations on the Maglev Initial Operating Segment (IOS) between Ontario International Airport and West Los Angeles. Mr. Brian Jackson, AICP, Senior Associate with IBI Group will provide an overview of the report and its findings.

SUMMARY:

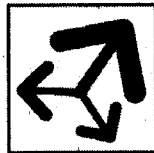
Staff reviewed and provided feedback on the Technical Report on the Potential for Transit Oriented Development. The plan was found to be consistent with the Milestone 1 of the Scope of Work identified for Phase 2, Part 1. The plan is also consistent with Federal Railroad Administration requirements.

The report discusses the following:

1. Transit Oriented Development
2. Maglev Station Elements
3. Station Area Redevelopment Principles
4. TOD Opportunities
5. Market Assessment of TOD Opportunities
6. Potential TOD Impacts on IOS Ridership
7. Potential Additional Revenues from TOD
8. Framework for TOD Design Guidelines
9. Implementation Strategy
10. Next Steps

**SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
MAGLEV DEPLOYMENT PROGRAM**

PART 1 - MILESTONE 1
**POTENTIAL FOR TRANSIT ORIENTED
DEVELOPMENT**



January 2006

Lockheed Martin- Integrated Systems and Solutions
2050 S. Blosser Road
Santa Maria, CA 93458

IBI Group
18401 Von Karman Avenue, Suite 110
Irvine, CA 92612

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MAGLEV
TURNING THE VISION INTO REALITY

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EXECUTIVE SUMMARY

Introduction

This technical report discusses the Potential for Transit Oriented Development (TOD) adjacent to proposed stations on the Maglev Initial Operating Segment (IOS) between Ontario International Airport and West Los Angeles. This technical report is identified as a deliverable under Milestone 1, Part I of the Maglev Deployment Program: Phase 2. The TOD technical report addresses each of the three project parts, from West Los Angeles to Ontario International Airport, approximately 54 miles in length. The project parts are as follows:

- Part I: Ontario International Airport (ONT) to San Gabriel Valley (19 miles)
- Part II: San Gabriel Valley to Union Station (18 miles)
- Part III: Union Station to West Los Angeles (17 miles)

The Potential for TOD technical report is identified as a deliverable under the following project Milestone:

- Part I: Ontario International Airport to San Gabriel Valley – Milestone 1

The Maglev Potential for TOD report provides land use and urban design guidance for implementing station area development plans and projects that are supportive of maglev. The intent is to make use of TOD concepts in order to increase economic opportunities and to increase ridership on the proposed maglev system.

Introduction to Transit Oriented Development

TOD – in its most basic form – is the development of compact, ‘complete communities’ where people can live, work, shop, and recreate, all within a 5-10 minute walk from home and a rapid transit station. Experience shows that successful TOD plans integrate land use and transportation planning – disciplines that have been traditionally completed in isolation – combining them with urban design, market economics, and a respect for the natural and social systems that exist within surrounding communities. The integration of these elements creates an opportunity to fully capitalize on the benefits of a transit system.



The core principles of TOD include:

- concentrate higher density, mixed-use development at the center of the community, adjacent to the transit station,
- residential densities decreasing towards the edge, and
- encourage pedestrian and bicycle travel through the provision of convenient connections.

Station Area Redevelopment Principles

In order for the proposed IOS to be successful, actions will need to be taken in order to achieve stations that are well-integrated with the surrounding communities, allowing for improved livability and access to the system. These guiding principles may be further translated into policies to be incorporated by cities into general plans, specific plans or station area plans to provide a regulatory framework for stimulating the desired patterns of development within the stations along the high-speed ground transportation system.

The guiding principles are related to the whole of station area planning, not any particular component. The four guiding principles are:

Guiding Principle 1: Encourage the use of the high speed ground transportation system.

Guiding Principle 2: Bridge the interaction gaps that dispersed patterns of development have created.

Guiding Principle 3: Plan the station area as a catalyst for Smart Growth.

Guiding Principle 4: Improve the function of ONT airport “Humanize the travel experience”.

TOD Opportunities

This section describes each station location and discusses each station’s opportunities and constraints based on site visits and information provided by the cities.

West Los Angeles

Many of the major educational, retail, cultural, and recreational attractions of Greater Los Angeles are located in the West Los Angeles area, as is a large portion of the entertainment industry. The currently proposed location for a maglev station in West Los Angeles is near the I-405 interchange with Wilshire Boulevard. This area is centrally located for providing access to the several major destinations including the Veterans Administration complex, UCLA, and other major employment and entertainment centers. Challenges related to existing land uses on the Veteran’s Administration site and community support for new development will need to be addressed as the station planning process continues. The station siting analysis will be coordinated with SCAG’s recently initiated West Los Angeles Multi-Modal Center study, which is exploring potential sites for a multi-modal transit center in West Los Angeles.

Union Station

Union Station is the primary mass transportation hub serving downtown Los Angeles. Union Station is the terminus of six Metrolink commuter rail lines, several express transit bus routes that

use the El Monte busway, the Red Line Subway, the Gold Line Light Rail and other local bus services. Union Station has developed an excellent pedestrian environment. In addition the multiple transit linkages existing at Union Station offer excellent connectivity and accessibility to and from the station. The mixed use high density redevelopment potential at Union Station offers unique opportunities for urban TOD lifestyle near Downtown Los Angeles with great accessibility and connectivity to maglev and other transit modes offered at this location.

City of Industry

The City of Industry is centrally located within the San Gabriel Valley along the SR-60 Pomona Freeway and the Union Pacific rail corridor, two potential maglev alignments. Two potential locations are under study for a maglev station in the City of Industry: one station on the proposed SR-60 alignment, the second following the Union Pacific rail corridor alignment. The proposed station on the SR-60 alignment would be located adjacent to the Puente Hills Mall. The mall has a significant amount of land area dedicated to surface parking, which could be redeveloped into the maglev station and structure parking for both uses. The second proposed maglev station is located along the Union Pacific rail corridor and Valley Blvd., adjacent to the Union Station intermodal yard. This proposed site is surrounded by established industrial uses, potentially limiting for redevelopment and introduction of new land uses that would be supportive of a maglev station. However, it is one of the few large sites along the rail corridor capable of accommodating the maglev station. In light of these challenges, City of Industry staff have encouraged further exploration of a proposed transit facility on the Cal Poly Pomona campus as a potential maglev station site in place of the locations identified above.

City of West Covina

The City of West Covina is located 20 miles east of downtown Los Angeles. Currently, the city is home to over 111,000 people, with 17 square miles of land area. The city serves as a transit hub for bus service within the San Gabriel Valley, with over 400 bus arrivals and departures in the city daily. The proposed West Covina maglev station would be south of the I-10 freeway, adjacent to Plaza at West Covina, between Sunset Ave. and Vincent Ave. The mall area provides extensive amounts of surface parking facilities, creating opportunities for placing a maglev station and structured parking designed to serve both the mall and the station. West Covina city staff indicated that the owners of the shopping center, Westfield, may not be supportive of the proposed maglev station being located adjacent to their property. Opportunities to shift the station closer to West Covina City Hall or further discussions with Westfield need to be pursued before the proposed station location is finalized.

City of Ontario

The City of Ontario is located in Western San Bernardino County and is part of Southern California's Inland Empire. The city currently encompasses 50 square miles of land, and is home to over 170,000 people. The proposed Ontario maglev station is to be located adjacent to the terminal of Ontario International Airport, allowing for a seamless connection between the maglev system and the airport.

Market Assessment of TOD Opportunities

West Los Angeles

Due to the proximity of the proposed station site to a hospital facility and the limitation in availability of vacant land at this location, it is not likely that this site would attract significant additional development. It is likely that development in this site would be directly related to the operation of the maglev with support facilities such as park and ride, with some commercial and retail. Fortunately, many of the high-density supporting land uses already exist nearby.

Union Station

Because of the existing nature of Union Station as a major transportation hub for the Los Angeles area, this site has a significant potential for transit oriented development in the future. Property north of Union Station is more promising for development of mixed use, because of the potentially easier access to the station and greater circulation enhancement opportunities.

City of Industry

The proposed Valley Boulevard maglev station location is surrounded by both new and old industrial buildings and therefore lends itself to higher intensities of industrial and commercial office uses. It is unlikely that this area would attract either commercial retail or high density residential uses. Given the proximity of the SR-60 freeway together with established land use patterns, it is unlikely that the Puente Hills Mall area would attract high density residential uses. However, this site would be suitable for higher intensities of commercial retail, commercial office and hotel uses.

City of West Covina

The surface parking lots north of the Plaza at West Covina provide the major development opportunities associated with this maglev station, with the cooperation of the owners of the mall. It is likely that at least half of the available 25 acres would be required for parking structures for park and ride, leaving 12 acres available for development. Building heights and intensities may be an issue for the surrounding neighborhoods and therefore it would be prudent to be conservative in estimating the development potential of this station location.

Ontario Airport

Given the proximity of the airport, proposed expansion plans, existing and proposed land uses, as well as restrictions which are placed on residential development, it is likely that with the proposed maglev station, the surrounding lands would develop into higher intensity commercial office, retail and hotel uses. While heights of buildings would be restricted by airport flight path regulations, intensities of land uses could increase significantly from the current conditions.

Potential TOD Impacts on IOS Ridership

In 2001 and 2004, SCAG's RTP included an analysis which looked at the rate of growth for cities with a maglev station and those without. In the maglev case, growth rates are higher. Employment growth rates will increase in cities with maglev stations to a higher level than in cities without a station. Using SCAG's RTP modeling information, maglev will probably increase employment growth rates for cities that are connected to the maglev system. Current maglev

forecasting models assume a modest catalytic and induced demand resulting from the introduction of the regional transit system. Thus far, very conservative estimates for how much additional development would be attracted to the proposed maglev stations as a result of maglev have been used in ridership forecasts. Additional analysis is required to estimate a more market-oriented development potential.

Potential Additional Revenues from TOD

There are several methods to obtain additional revenues from TOD to help finance the proposed maglev capital costs. Additional studies on this topic are underway or will be undertaken in the near future. The methods include:

Benefit Assessment Districts - Specially designated districts around transit stations, for which landowners make cash contributions (usually pro-rated on the basis of land area, assessed property values, or distance from the transit station) to help finance the public facility.

Tax Increment Financing - Under this approach, the property tax base within a specially designated area is frozen at a certain point in time. All incremental gains in property tax receipts above the base level are earmarked for retiring the bonds of major public investments made within the district.

Transfer of Development Rights - A process whereby development rights of one lot, parcel or area of land in one district are transferred to another lot, parcel or area of land in another district.

Implementation Strategy

This section is focused on changes that may be necessary in order to facilitate Transit-Oriented Development (TOD) within certain maglev station areas and along the maglev route after land use options and policy recommendations are developed. It is hoped that by using the appropriate implementation mechanisms, new patterns of development that are supportive of transit use will be achieved in selected station areas and corridors in Los Angeles, West Covina, City of Industry and the City of Ontario; and further, resulting in vibrant places for residents and workers.

Various types of land use regulations and financial tools that might be employed in implementing TOD along the maglev system are identified below.

- General Plan
- Zoning
- Overlay Zoning
- Transit Overlay Districts
- Interim Zoning
- Specific Plans
- Incentive Zoning
- Mixed Use Development
- Vertical Mixed Use (Ground Floor Commercial Requirement)
- Minimum Densities
- Parking Maximums
- Prohibiting Uses
- Urban Design Guidelines
- Conditional Use or Special Permit Approval

TOD Next Steps

This report has summarized the potential for transit oriented development associated with the proposed maglev stations in Los Angeles, West Covina, City of Industry and the City of Ontario, based on information provided by the cities and information obtained from a variety of sources. As set out in the recommendations below, there is additional planning for transit-oriented development that can be undertaken as part of next phases of the maglev study or by the cities.

- Ontario Airport - Over the course of the next phase of the study, additional specific policies and plans with respect to new development should be developed in conjunction with the City of Ontario and Los Angeles World Airports (LAWA) to help realize this potential.
- West Covina and City of Industry - Over the course of the next phase of the study, the landowners should be contacted to explain the maglev proposal, outline the proposed benefits of the maglev system, as well as determine their interest in redeveloping their properties in conjunction with a proposed maglev station.
- Union Station - A proposed maglev station would enhance the potential for additional transit oriented development. Over the course of the next phase of the study, additional specific policies and plans with respect to new development around Union Station should be developed in conjunction with the City of Los Angeles.
- West Los Angeles - The TOD potential of the West Los Angeles maglev station is dependent on the development proposals that have been presented to date for the site. Over the course of the next phase of the study, additional specific policies and plans with respect to new development should be developed in conjunction with the City of Los Angeles.

2.1.1 INTRODUCTION

Description of the Initial Operating Segment (IOS)

Alignment Alternatives: On December 5, 2002 the SCAG Regional Council adopted an Initial Operating Segment (IOS) starting at Ontario Airport, going west through the San Gabriel Valley, Los Angeles Union Station, and ending at West Los Angeles. Three alternative alignment solutions to connect these locations have been developed. They utilize right-of-ways maintained by Caltrans, railroad companies, and other stakeholders. The three alignment alternatives include the following (see Figure 1):

- Interstate 10 (I-10)
- Union Pacific Railroad / Valley Boulevard
- State Route 60 (SR-60)

Interstate 10 Alignment: This alternative starts in the West Los Angeles area at the Veterans Administration Hospital area on Wilshire Boulevard at the Interstate 405 Freeway. It begins by following Interstate 405, then turns east onto Interstate 10 to Alameda Street. The alignment then parallels Alameda Street and the Los Angeles River to Union Station.

From Union Station, the alignment travels east along the Union Pacific Alhambra Lead to Eastern Avenue where it transitions back to Interstate 10. The alignment then parallels Interstate 10 until transitioning onto SR 71 and then onto the Union Pacific rail corridor into Ontario.

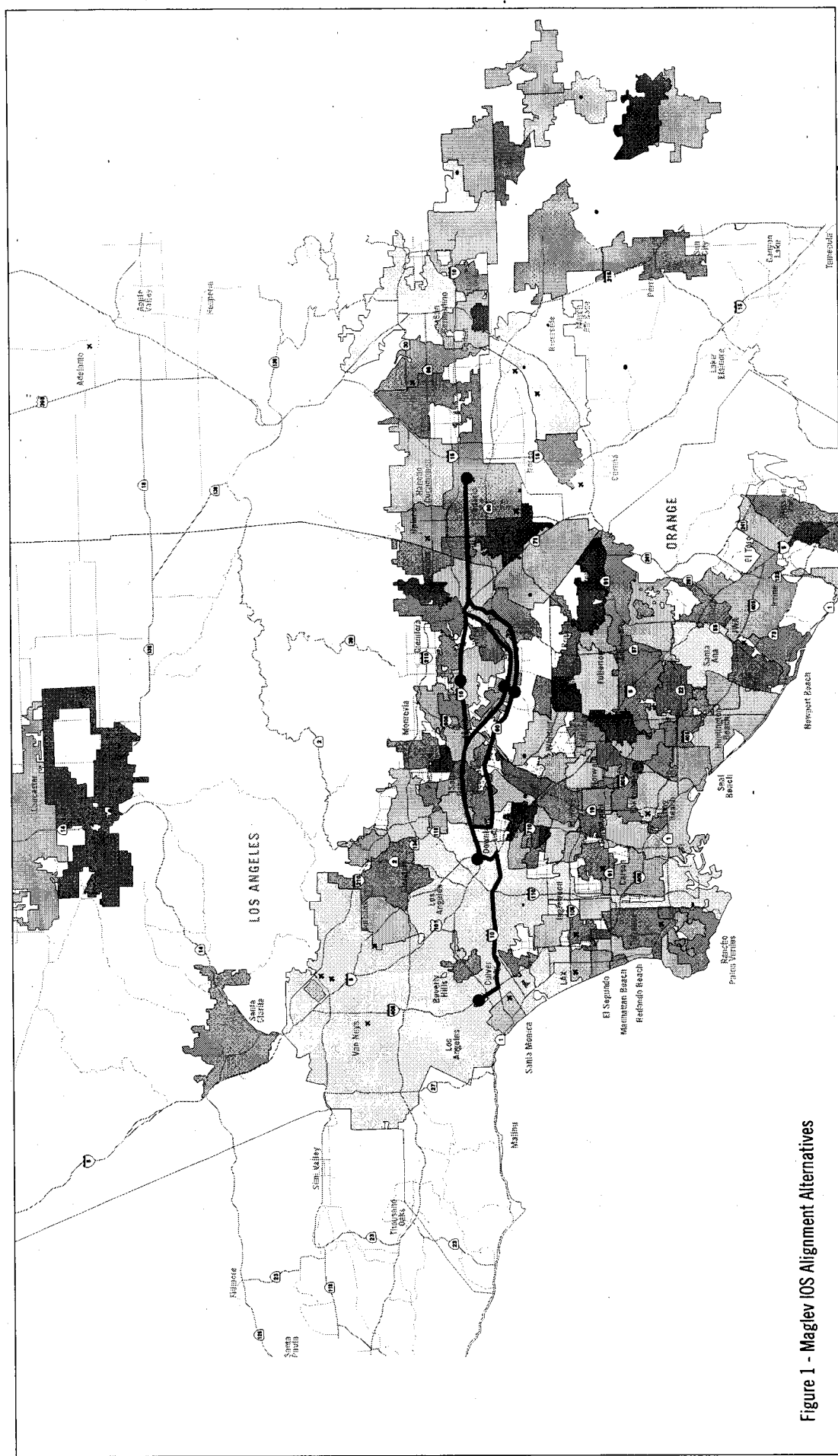
The Interstate 10 Alignment for the Maglev IOS Study is approximately 54 miles in length and contains the following four stations¹:

- West Los Angeles
- Los Angeles Union Station
- West Covina
- Ontario International Airport

Union Pacific Alignment / Valley Boulevard: This alternative also starts in the West Los Angeles area at the Veterans Administration Hospital on Wilshire Boulevard at Interstate 405 Freeway. It follows Interstate 405 and then transitions east onto Interstate 10 to Alameda Street. The alignment then parallels Alameda Street and the Los Angeles River to Union Station.

From Union Station, it travels east along the Union Pacific Alhambra Lead to Eastern Avenue where it transitions back to Interstate 10. It then parallels Interstate 10 until transferring onto the Union Pacific right-of-way in El Monte. The alignment then follows the Union Pacific alignment, paralleling Valley Boulevard for most of the alignment in the San Gabriel Valley, and continuing into Ontario.

¹ Station locations identified throughout this document are conceptual and could be changed based on future analysis.



The Union Pacific Alignment for the Maglev IOS Study is approximately 57 miles in length and contains the following four stations:

- West Los Angeles
- Los Angeles Union Station
- City of Industry
- Ontario International Airport

State Route 60 Alignment: As with the previous alternatives, this alternative starts in West Los Angeles at the Veterans Administration Hospital area on Wilshire Boulevard at the Interstate 405 Freeway. The alignment follows Interstate 405 and then transitions to east onto Interstate 10 to Alameda Street. The alignment then parallels Alameda Street and the Los Angeles River to Union Station. From Union Station, it travels east along the Union Pacific Alhambra Lead to Eastern Avenue where it transitions back to Interstate 10. The alignment then transitions south onto Interstate 710 and then east onto State Route 60. In Diamond Bar, it transitions north onto State Route 57 and east onto the Union Pacific rail corridor alignment into Ontario.

The State Route 60 Alignment is approximately 59 miles in length and contains the following four stations:

- West Los Angeles
- Los Angeles Union Station
- City of Industry
- Ontario International Airport

Purpose

Milestone 1 is the first in a series of 7 Milestones in Part 1 of the study. It discusses transit-oriented development (TOD) as related to the high speed ground access system from the west side of Los Angeles to Ontario Airport, the proposed IOS or Initial Operating Segment. The report includes the following components:

- A description of principles related to station area development and TOD.
- An identification of TOD opportunities along the proposed Maglev IOS route.
- A brief discussion and market assessment of TOD opportunities based on supply of and demand for commercial office, retail and residential uses in the area surrounding the proposed maglev stations.
- A investigation of how TOD influences on IOS ridership and
- A description of how TOD would have the potential to create additional revenues for the system
- Finally, a framework is provided for design guidelines for the stations and the surrounding areas

The maglev Transit Oriented Development (TOD) report provides land use and urban design guidance for implementing station area development plans and projects that are supportive of maglev. The intent is to make use of TOD concepts in order to increase economic opportunities and to increase ridership on the proposed maglev system. In implementing maglev, elected officials and planners must understand the linkages between land use and transportation. The maglev system will bring increased accessibility throughout the region and to the airports, which will be advantageous in terms of economic and societal benefits to the local communities in which the proposed stations are located.

Relationship to SCAG's 2% Solution

In 2002, SCAG embarked on a process that created a vision of the future for the Southern California region. In an effort to maintain the region's prosperity, continue to expand its economy, house its residents affordably, and protect its environmental setting as a whole, SCAG brought together the ideas, hopes and dreams of interdependent sub-regions, counties, cities, communities and neighborhoods. The process was called Southern California Compass and the result was a shared Growth Vision for Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties.

In June, 2004, after an extensive outreach program, the SCAG Board adopted the vision. Transit, in general, and maglev specifically, is part of that vision. The strategy of combining compact, mixed-use development with housing and jobs near major transportation infrastructure proved to be of enormous benefit in accommodating future growth. There is much evidence that a reduction in vehicle driving occurs in areas where land use and transportation are integrated and densities are higher.

The Compass Growth Vision sets out that "a maglev train would offer an alternative mode for regional travel, to reinforce the larger business centers, and to improve the connections between the region's airports." The vision goes on to discuss future mobility in the region, stating that "for longer distances, high speed trains and maglev will fill a role of ever increasing importance. This high speed system will easily serve center-to-center regional travel as well as longer in-state trips."

The Compass Growth Vision report culminates in a map of Southern California which shows the proposed locations of future growth. The proposed maglev system is clearly shown as part of the vision for the future. The map on the following page illustrates the relationship between the Maglev IOS and the growth areas identified through the Compass Growth Vision. The map clearly illustrates the enormous potential for growth along the corridor, particularly in the areas surrounding Union Station in Los Angeles and the City of Ontario.

Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

- Potential Stations
- IOS Alternatives
- Airports
- SCAG 2% Strategy Opportunity Areas
- Highways
- Railroads

Map Labels: LOS ANGELES, SAN BERNARDINO, RIVERSIDE, ORANGE, West LA, West Covina, City of Industry, Ontario Airport, LAX, ONT.

Scale: 0 2.5 5 Miles

Date: July 14, 2005

IBI GROUP

Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

- Potential Stations
- IOS Alternatives
- Airports
- SCAG 2% Strategy Opportunity Areas
- Highways
- Railroads

Map Labels: LOS ANGELES, SAN BERNARDINO, RIVERSIDE, ORANGE, West LA, West Covina, City of Industry, Ontario Airport, LAX, 101, 10, 60, 91, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100.

Scale: 0 2.5 5 Miles

North Arrow: N

IBI GROUP

Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

- Potential Stations
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- Railroads

Map Labels: LOS ANGELES, SAN BERNARDINO, ORANGE, RIVERSIDE, West LA, West Covina, City of Industry, Ontario Airport, LAX, ONT.

Scale: 0 to 5 Miles

North Arrow: N

IBI GROUP

[illegible]

**Maglev Initial Operating Segment (IOS) and
SCAG 2% Strategy Opportunity Areas**

This map illustrates the proposed Maglev rail network in Southern California, specifically focusing on the initial operating segment (IOS) and potential strategy opportunity areas. The map covers parts of Los Angeles, San Bernardino, Orange, and Riverside counties.

Legend:

- Potential Stations (indicated by small circles)
- IOS Alternatives (indicated by thick black lines)
- Airports (marked with airplane icons)
- SCAG 2% Strategy Opportunity Areas (shaded regions)
- Highways (thin solid lines)
- Railroads (dashed lines)

Key Locations and Features:

- Cities:** West LA, West Covina, City of Industry, Ontario.
- Airports:** LAX (Los Angeles International Airport), Ontario Airport.
- Counties:** LOS ANGELES, SAN BERNARDINO, ORANGE, RIVERSIDE.
- Highways:** I-5, I-10, SR-60, SR-78, SR-91.
- Railroads:** Union Pacific Railroad, Metrolink.

The map shows several potential station locations along the IOS alternatives. Shaded areas represent SCAG 2% Strategy Opportunity Areas, which are primarily located in the western part of the map, near West LA and West Covina. The IOS alternatives generally follow major transportation corridors, connecting the Los Angeles area to the Inland Empire and beyond.

Scale and Orientation:

- Scale:** 0 to 5 Miles.
- Orientation:** North arrow pointing towards the top right of the map.
- Date:** July 14, 2005.

IBI GROUP

[illegible]

Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

- Potential Stations
- IOS Alternatives
- Airports
- SCAG 2% Strategy Opportunity Areas
- Highways
- Railroads

Map Labels: LOS ANGELES, SAN BERNARDINO, RIVERSIDE, ORANGE, West LA, West Covina, City of Industry, Ontario Airport, LAX, 101, 10, 60, 91, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100.

Scale: 0 2.5 5 Miles

North Arrow: N

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Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

- Potential Stations
- IOS Alternatives
- Airports
- SCAG 2% Strategy Opportunity Areas
- Highways
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Map Labels: LOS ANGELES, SAN BERNARDINO, ORANGE, RIVERSIDE, West LA, West Covina, City of Industry, Ontario Airport, LAX, ONT.

Scale: 0 to 5 Miles

North Arrow: N

IBI GROUP

[illegible]

Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

- Potential Stations
- IOS Alternatives
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Map Labels: LOS ANGELES, SAN BERNARDINO, ORANGE, RIVERSIDE, West LA, West Covina, City of Industry, Ontario Airport, LAX, ONT.

Scale: 0 to 5 Miles

North Arrow: N

IBI GROUP

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North Arrow: N

IBI GROUP

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- Railroads

Map Labels: LOS ANGELES, SAN BERNARDINO, ORANGE, RIVERSIDE, West LA, West Covina, City of Industry, Ontario Airport, LAX, ONT.

Scale: 0 to 5 Miles

North Arrow: N

IBI GROUP

Maglev Initial Operating Segment (IOS) and SCAG 2% Strategy Opportunity Areas

Legend:

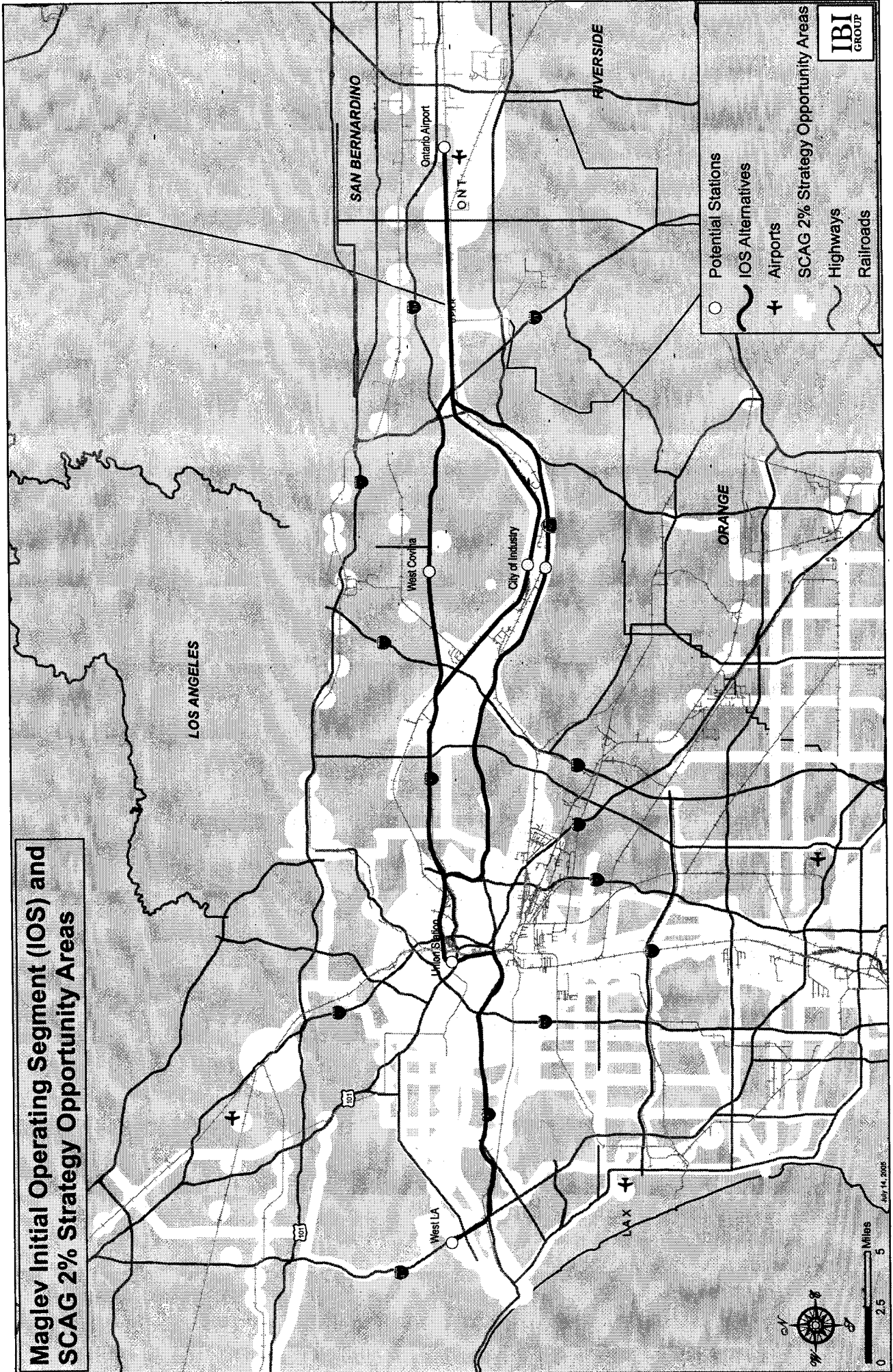
- Potential Stations
- IOS Alternatives
- Airports
- SCAG 2% Strategy Opportunity Areas
- Highways
- Railroads

Map Labels: LOS ANGELES, SAN BERNARDINO, ORANGE, RIVERSIDE, West LA, West Covina, City of Industry, Ontario Airport, LAX, ONT.

Scale: 0 to 5 Miles

North Arrow: N

IBI GROUP



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IBI GROUP

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Scale: 0 to 5 Miles

North Arrow: N

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Report Content Summary

Milestone 1 is made up of 11 tasks:

1. Introduction
2. Introduction to TOD
3. Maglev Station Elements
4. Station Area Development Principles
5. Identification of TOD Opportunities along the proposed Maglev IOS route
6. Market Assessment of TOD opportunities
7. Potential TOD impacts on IOS Ridership
8. Potential additional revenues from TOD
9. Framework for TOD Design Guidelines
10. Implementation Strategy
11. TOD Next Steps

2.1.2 INTRODUCTION TO TRANSIT ORIENTED DEVELOPMENT

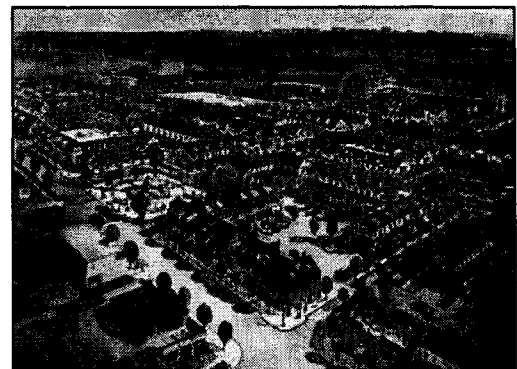
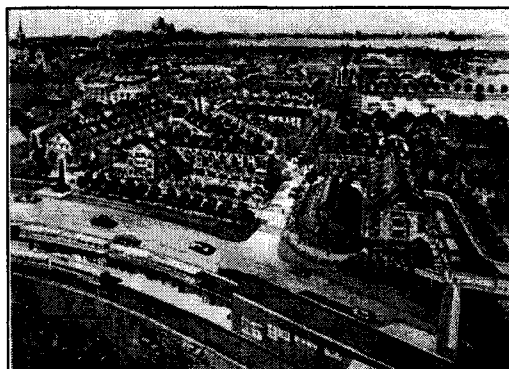
Definition of TOD

The concept of Transit-Oriented Development (TOD) has gained considerable attention since it was coined in the early 1990's. In the United States, the Federal Transportation Authority (FTA), as well as other federal, state, and municipal agencies have expressed a keen interest in the TOD concept. TOD has proven to be an effective tool in reducing and managing some of today's most difficult urban challenges: low transit ridership, increasing local and global pollution levels, lack of affordable housing options, inner city decline, high 'automobile dependence,' increasing obesity and health issues, and generally, poorly coordinated land use and transportation planning, intensifying what is commonly referred to as "urban sprawl." Transit-Oriented Development is an old concept with a new image – and one that has the potential to significantly improve how the residents of Southern California work, live, and play.

TOD – in its most basic form – is the development of compact, 'complete communities' where people can live, work, shop, and recreate, all within a 5-10 minute walk from home and a rapid transit station. Most TOD communities feature some form of fixed transit – commuter rail, Light Rail Transit (LRT), etc. – and for that reason emulate the traditional neighborhood design principles of 'small town America a hundred years ago,' with the transit station as the 'heart' of the community. Besides the obvious transit, environmental, and built-form benefits, TOD offers an opportunity for communities to create a unique sense of place and sense of community, building important 'social capital' that helps keep neighborhoods safe, desirable, and most importantly, pedestrian-friendly.

Experience shows that successful TOD plans integrate land use and transportation planning – disciplines that have been traditionally completed in isolation – combining them with urban design, market economics, and a respect for the natural and social systems that exist within surrounding communities. The integration of these elements creates an opportunity to fully capitalize on the benefits of a transit system.

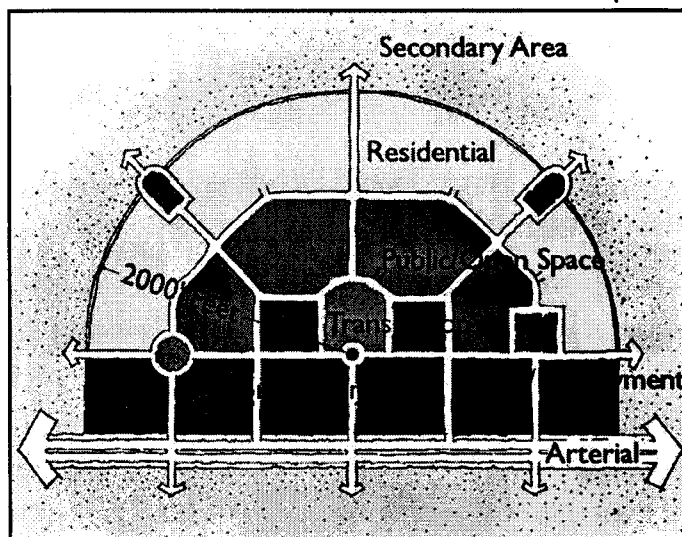
The concept of TOD is an excellent way to both structure new growth in suburban areas and revitalize or redevelop older existing urban areas. Often, older shopping districts (also known as 'greyfield' sites) in 'first-ring' suburbs that have been made obsolete by newer shopping districts become prime candidates for retrofit with TOD principles. Along the proposed IOS routes, there are significant opportunities for both infill development and redevelopment of 'greyfield' and vacant sites.



TOD – Defined

Transit-Oriented Development (TOD) is commonly defined as:

The creation and restoration of compact, pedestrian-friendly, mixed-use neighborhoods containing a range of housing types, workplaces, shops, entertainment, schools, parks and civic facilities essential to the daily lives of their residents – all within an easy 5-10 minute walking distance of a transit station (approximately a ¼ mile). Transit-oriented development is essentially a ‘city on a small scale.’



Source: Calthorpe Associates

Transit-Oriented development (TOD) creates an environment around a transit station that supports pedestrian activity and transit use through planning for a mix of land uses in a safe, vibrant, active place.

The above diagram illustrates the core principles of TOD: concentrate higher density, mixed-use development at the center of the community, adjacent to the transit station, with residential densities decreasing towards the edge, and encourage pedestrian and bicycle travel through the provision of convenient connections. The centerpiece of TOD is the transit station – connecting residents and employees to the rest of the region – and the civic and public spaces that surround it. The result of good TOD planning is simple: by concentrating more jobs and housing around transit and daily conveniences by developing land use patterns that support transit, people use their cars less and walk and ride transit more – a conclusion confirmed by research. As the maglev is a regional transit system, the maglev station “capture area” is likely much larger than more traditional transit stations, particularly at terminus locations such as Ontario airport and West LA. The exact impacts of maglev beyond the typical ¼ mile station planning area would depend on the amount of available land for redevelopment, connecting transit systems and infrastructure and road capacity.

TOD Benefits

TOD provides a range of benefits to transit agencies, residents, businesses, developers, municipalities, and to the environment:

Benefits to Transit Agencies

- Improved public transit
- Increase transit use / ridership
- Develops a 'transit ethic' – particularly important for younger people who may choose to continue using public transit once they become working adults

Benefits to Residents

- Increases transportation choices
- Less traffic congestion, less driving
- Less unsightly, congested sprawl
- Healthier - more walking, less stress and cleaner air and water
- Closer proximity to retail and services – "...smaller, unique shops ..."
- Closer proximity to bike trails, parks and nature
- Pedestrian friendly – "Get to know your neighbors ..."
- More independence for children, elderly and the poor
- Safer neighborhoods with more 'eyes on the streets'
- Better access to nature and greenspace
- Savings to School Boards – e.g. reduced need for school buses
- Lower utility costs due to compact design
- Better 'sense of place and community identity'
- Increases housing options
- Reduced personal transportation costs, allowing some families to live 'car-free' or with one less car, saving up to \$3,000-4,000 per year

Benefits to Businesses

- Increased business due to more foot traffic
- Reduced spending on advertising and large signs
- Reduced need for stressful and costly daily commute
- Economies of scale regarding marketing / cooperation with other local businesses
- Local business incubation opportunities
- Lower rents due to smaller spaces and smaller parking lots
- More community involvement – "Being part of community and knowing residents ..."

Benefits to Developers

- More income potential from higher density, mixed-use projects
- More sales per square foot
- Faster approvals in communities
- Cost savings in parking facilities due to sharing of spaces for day time / night time use
- Less impact on roads / traffic
- Improved 'corporate image' associated with 'good development'

Benefits to Municipalities

- Stable, appreciating tax base
- Lower per capita infrastructure costs
- Less traffic congestion
- Less crime / policing – “the presence of more people day and night ...”
- Less resistance to new developers from community
- Less incentive to sprawl – focuses growth in corridors and nodes
- Better overall community image and sense of place

Benefits to the Environment

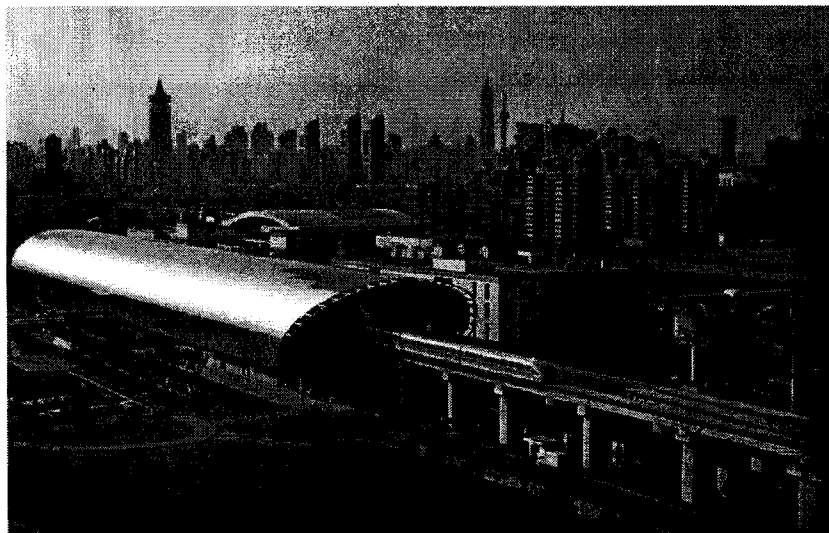
- Reduced local and global air pollution
- Reduced water runoff and pollution

2.1.3 MAGLEV STATION ELEMENTS

The purpose of this section is to describe the key components of a typical maglev station. This information is necessary to understand how the station would fit in the surrounding community context. A typical maglev station platform is 600 – 1000 feet in length and between 25 to 40 feet wide depending on whether the platform is a side platform or a center platform. The station would be elevated and, depending on the design selected, may include a mezzanine floor below or above the platform level.

Maglev stations will serve a regional transportation centers, attracting passengers from a wider catchment area than other forms of transit services such as light rail or commuter rail. Terminus stations, including West Los Angeles and Ontario Airport will be significant attractors for passengers. These stations will require large park-and-ride facilities and connections to other local and regional transit services.

Union Station is a special case given its current role as a regional transit and transportation hub. The existing layout of the station facilitates serving large numbers of passengers for different transportation modes. An assessment of pedestrian capacity was completed for Union Station in Milestone 3 of the Maglev Deployment Program, Phase 1. This assessment found that Union Station is capable of accommodating additional pedestrians that use the facility with the implementation of maglev.

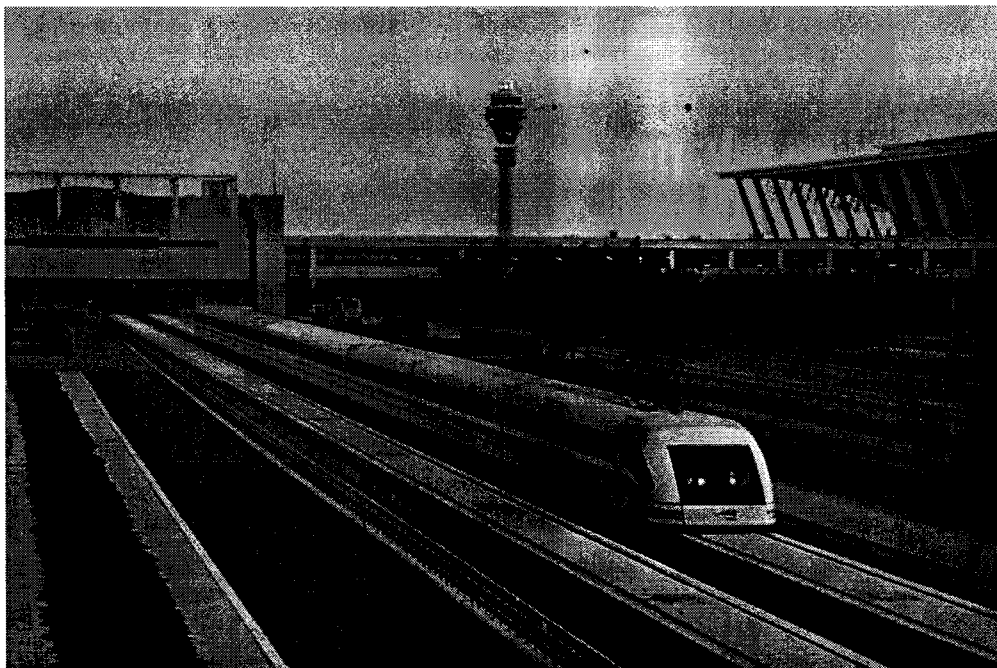


The Long Yang Road maglev station in Shanghai, China is an example of a maglev station within an urban area.

Mid-line maglev stations, such as stations in the San Gabriel Valley, will function similar to a commuter rail station in that the station will require park-and-ride facilities designed to accommodate anticipated passenger demand for the surrounding communities. These stations will be smaller in scale than the terminus stations.

All maglev stations would incorporate a ticketing/check in area, retail uses to serve commuters, restrooms, elevators, stairs, parking, bus bays, and kiss-and-ride/taxi/van drop off. Maglev stations

may also include facilities for baggage handling related to airports and cargo handling to facilitate the envisioned airport connector role of the system. A final determination baggage handling and remote airport check-in will require an analysis of issues concerning accountability/responsibility, security, keeping passengers and baggage together, processing at the stations and airport terminals, and access between maglev stations and terminals. This analysis will be completed in later phases of the program.



The Pudong Airport maglev station in Shanghai, China provides a direct link into the main airport terminal.

Cargo handling will likely be limited to relatively small (to fit in baggage containers), time sensitive (high value related) cargo. Typically most of this would be accomplished during off-peak periods by the baggage system, so the latter would not be overwhelmed by too much baggage and cargo. The end of the station could include a loading dock and check-in point for cargo.

Additional discussion on the proposed maglev stations will occur as part of the Preliminary Design of Stations milestone. This milestone will explore the basic components common to each station, discuss potential station needs in terms of parking and facilities, and identify specific characteristics unique to each proposed station location.

2.1.4 STATION AREA REDEVELOPMENT PRINCIPLES

In order for the proposed IOS to be successful, actions will need to be taken in order to achieve stations that are well-integrated with the surrounding communities, allowing for improved livability and access to the system. These guiding principles may be further translated into policies to be incorporated by cities into general plans, specific plans or station area plans to provide a regulatory framework for stimulating the desired patterns of development within the stations along the high-speed ground transportation system.

The Los Angeles basin has a pattern of development that has largely been based around the growing popularity and use of the automobile over the last 50 years. This has resulted in a dispersal of industry and housing throughout the region. While this initially served the area well in terms of growth, as population and employment growth has exploded, this low-density pattern has created major problems in terms of transportation and sustainability. As other cities in the world have been built and rebuilt over time into livable places for people, so will the Los Angeles basin experience a continued building and rebuilding through the combined efforts of transportation and land use planning. The objective is to use the maglev IOS (and other lines) to promote and stimulate this restructuring and at the same time to use the development to support the operational of the line.

The guiding principles contained here are related to the whole of station area planning, not any particular component. In other words, these are the ideas to keep in the forefront of our thinking when implementing other station area policies, plans and projects related to land use, urban design, economical development, and circulation.

Guiding Principle 1: Encourage the use of the high speed ground transportation system. Implementing this system will require a massive investment of capital, time and labor. Station area development, including the station itself, must be located, designed and maintained to contribute to the use and efficiency of the high-speed system.

Guiding Principle 2: Bridge the interaction gaps that dispersed patterns of development have created. Through physical design and right mix of land uses in station areas, opportunities for increased interactions between human beings at a local, regional and global level can be realized. This will maximize the potential for achieving a competitive edge in the global marketplace.

Guiding Principle 3: Plan the station area as a catalyst for Smart Growth. Improved accessibility through the high-speed system and its interface with other transit modes provides opportunities for renewed centralization of employment and housing through concentrated development within the areas surrounding station. If growth is going to occur at the levels that are being projected, then it should be directed to areas that are best able to handle it through mixed, higher density development and high levels of transit service.

Guiding Principle 4: Improve the function of ONT airport "Humanize the travel experience". The high-speed system will serve to extend the reach of Ontario International Airport. Its station should be perceived by the users as the secondary gateways to the airport and should thereby contribute to an improved overall travel experience from the time one arrives at a station through to arrive at the airport terminal and vice versa.

2.1.5 TOD OPPORTUNITIES

Introduction

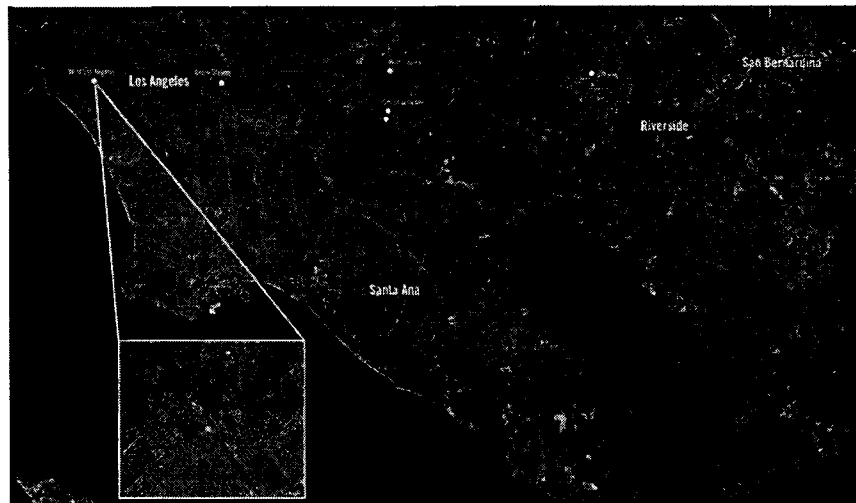
This section describes the TOD opportunities associated with each proposed maglev station. Currently stations are proposed in West LA, Union Station, West Covina or City of Industry (depending on the alignment selected), and Ontario Airport. In this section we describe each station location and discuss each station's opportunities and constraints based on site visits and information provided by the cities.

West Los Angeles

Background: Located west of downtown Los Angeles, the West Los Angeles area consists of diverse communities of various social and economic stature. The West Los Angeles area is generally considered to be the portion of Los Angeles and its suburbs that lies east of the Pacific Ocean, west of La Cienega Boulevard (or, occasionally, Fairfax or even La Brea Avenue), south of the Santa Monica Mountains, and north of the Los Angeles International Airport (LAX). This area includes many of the City of Los Angeles Westside communities such as Westwood, Bel Air, Century City, and Brentwood, and includes independent cities such as City of Santa Monica and Beverly Hills. Westwood is best known for being the home of the University of California at Los Angeles (UCLA) and in recent years the area of Westwood has also become a vibrant shopping area and entertainment district.

Many of the major educational, retail, cultural, and recreational attractions of Greater Los Angeles are located in this area, as is a large portion of the entertainment industry. Century City is a major business hub of West Los Angeles, containing many major production corporations, talent agencies, and entertainment law firms. Santa Monica, Beverly Hills, and new developments near LAX are also important entertainment industry centers. The Westside rivals downtown Los Angeles for the number of people commuting to it from other areas.

Another important resident of this area is the West Los Angeles Veterans Affairs (VA) Hospital. The 600,000 square foot building on 28 acres on Wilshire Boulevard was opened on November 21, 1969 and became an instant landmark on the Westwood skyline.



Opportunities and Constraints: The proposed location for a station in West Los Angeles is near the I-405 interchange with Wilshire Boulevard. This central location provides a strong connection to the surrounding area as a full interchange exists at Wilshire Boulevard with I-405. In addition to the superior freeway and arterial access to this location, this area is centrally located for providing access to the several major destinations including the Veterans Administration complex, UCLA, and other major employment and entertainment centers. The northeast quadrant of the station area is occupied by the Los Angeles National Cemetery, which poses a significant constraint for placing a station or guideway at this location. However, opportunities for station placing coupled with station area infill development might exist on the southeast quadrant of Wilshire/I-405, as large surface parking lots are present at this location. The Veterans' Administration complex is the dominant land use on the southwest quadrant of the interchange. This site prohibits the placement of a station at this quadrant and furthermore, the presence of the hospital may introduce constraints related to noise, which will need to be addressed. The best opportunity for a station may be in the northwest quadrant of Wilshire/I-405 where older industrial uses are currently located.

The station siting analysis will also be coordinated with SCAG's recently initiated West Los Angeles Multi-Modal Center study. This study is exploring potential sites for a multi-modal transit center in West Los Angeles. There is a potential to tie this facility in with the proposed maglev alignment to provide seamless transfers between the maglev system and local transit services in the area.

Generally, the pedestrian environment in this area is very good. Connections exist throughout the veterans' complex and along Wilshire Boulevard, and the area is also well landscaped. However, opportunities for station placement at all quadrants are somewhat challenged by the I-405 on-off ramp configurations. Figure 3 on the following page illustrates the opportunities and constraints associated with the potential West Los Angeles station site.



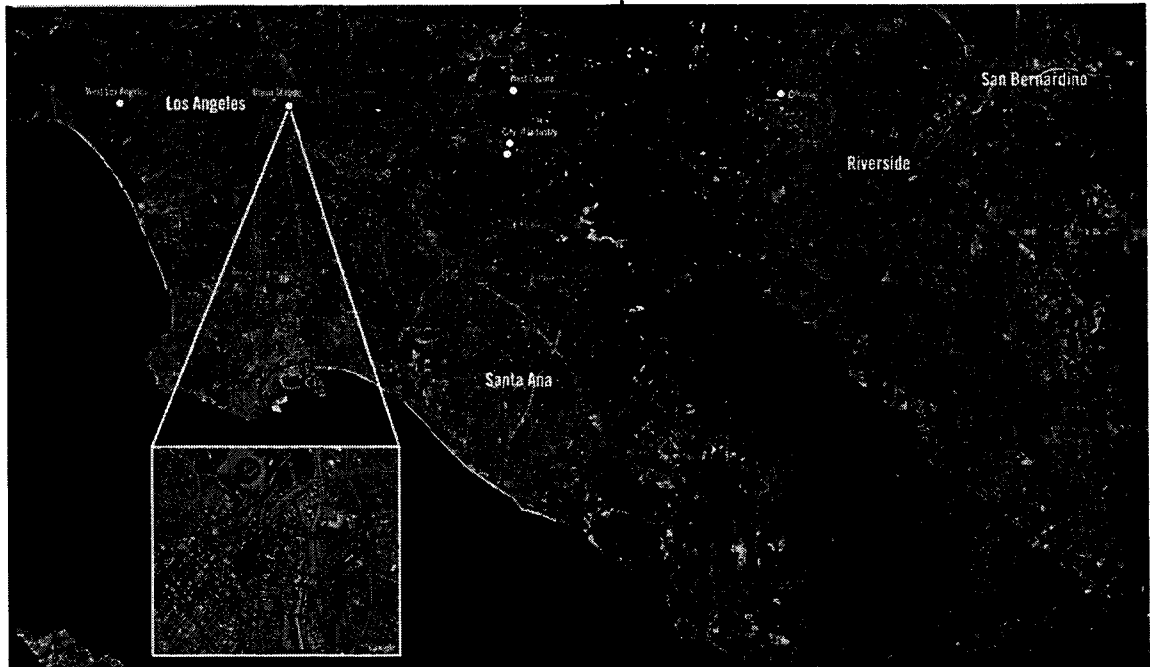
The aerial photo shows the Veterans Administration site. The hospital is visible in the southwest corner of the I-405/Wilshire interchange. Potential station sites include the southeast and northwest quadrants



Figure 3 — West Los Angeles Opportunities and Constraints

Union Station

Background: Union Station is the primary mass transportation hub serving downtown Los Angeles. It is located just northeast of downtown Los Angeles in a predominantly industrial area west of the Los Angeles River. Today, Union Station is the terminus of five Metrolink commuter rail lines, several express transit bus routes that use the El Monte busway, the Red Line Subway, the Gold Line Light Rail and other local bus services. Union Station is served by several public and private feeder/distributor bus and shuttle services such as LADOT's Dash buses and MTA local buses that take embarking passengers from their trains to their final destinations in downtown and Central Los Angeles. In the future, the Los Angeles Union Passenger Terminal (LAUPT) will be the terminus of expanded Metrolink commuter rail train service. Serving as the central transportation hub for the Greater Los Angeles area, LAUPT has also been the focus of much transit planning over the years with several major projects that are expected to connect to Union Station including the California High Speed Rail, and maglev. In addition, a major study to extend the tracks over the 101 Freeway is underway (Union Station Run-Through Tracks)



Opportunities and Constraints:

Union Station was identified during the Phase I Maglev Deployment Study as an elevated station over existing Platform 4 and tracks, or above the roadway that is west of the Gold Line platform and tracks. There is more flexibility in the second location, particularly as it pertains to the station width. Union Station has developed an excellent pedestrian environment and further pedestrian linkages to Arcadia and Alameda Street are contemplated. This will allow passengers to reach destinations on the north side of downtown such as the Los Angeles Civic Center, Little Tokyo and Chinatown. In addition the multiple transit linkages existing at Union Station offer excellent connectivity and accessibility to and from the station.

Since the maglev platform is proposed as an elevated structure above existing transportation uses, it should not impact the environment significantly and a more detailed look at space availability for construction of this facility should be undertaken.

The mixed use high density redevelopment effort at Union Station offers unique opportunities for urban TOD lifestyle near the downtown of Los Angeles with great accessibility and connectivity by maglev and other modes offered at this location.

South of Union Station the Hollywood Freeway presents a barrier limiting accessibility to the station from the south. However, as the Run-Through Tracks project advances, it opens new opportunities to connect the area south of the freeway to the station area. This area, which is predominantly heavy industrial uses, could be an opportunity for infill redevelopment. Similarly, areas north of the station contain large surface parking lots that present additional redevelopment opportunities. However, since Union Station serves as a major hub for rail, as well as other transit operations, heavy rail operations could pose an environmental challenge from the point of view of noise and air quality impacts on their immediate surroundings.

Further northeast of Union Station just across of the Los Angeles River lies a major rail yard that could one day be a major redevelopment opportunity in this area. Nevertheless, currently there is no immediate alternative to this yard and the Los Angeles River poses a major physical barrier for connectivity to this site. Figure 4 on the following page illustrates the opportunities and constraints associated with the area surrounding Union Station.



This aerial photo shows Union Station. Development opportunities exist north and south of the station. However, the US-101 freeway does act as a barrier between the station and properties to the south.

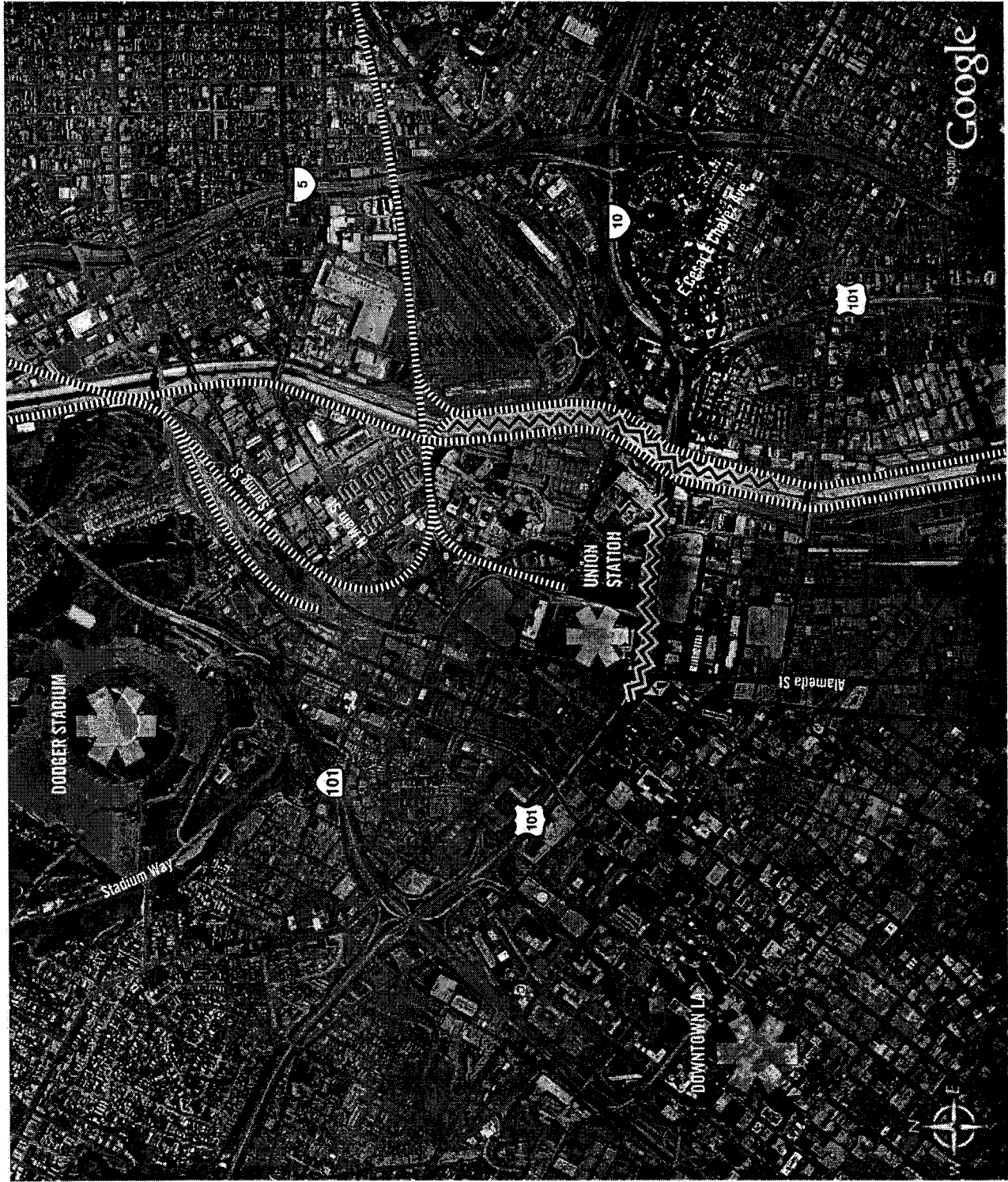
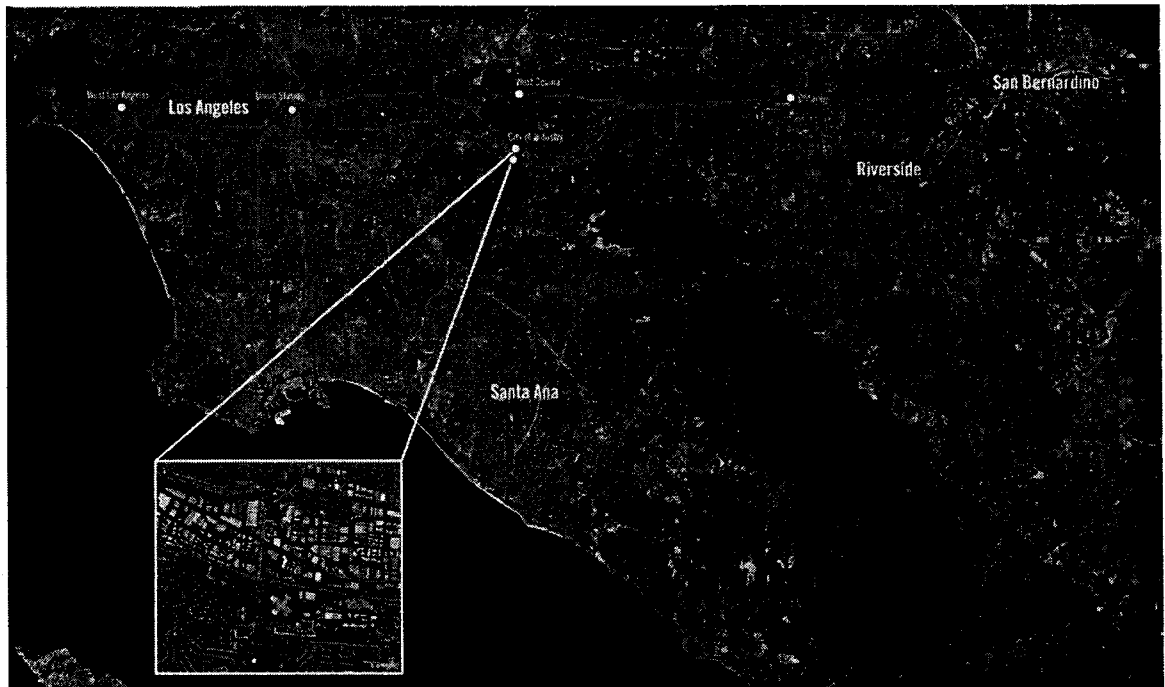


Figure 4 – Union Station Opportunities and Constraints

City of Industry

Background: The City of Industry is centrally located within the San Gabriel Valley along the SR-60 Pomona Freeway. The city is an established industrial area, currently encompassing 14 square miles of land. The majority of the city's land area is dedicated to industrial and commercial uses with negligible residential area and population.

The city focuses on supporting and promoting industrial and commercial lands. The location of the city adjacent to major east-west and north-south freeway corridors, as well as major trans-continental railroad lines, provides convenient access to Southern California's ports, airports and rail facilities. The city's employment base exceeds 80,000 jobs, and it serves as a major employment hub in the San Gabriel Valley.



Opportunities and Constraints:

There are two potential locations under study for a maglev station in the City of Industry. One station follows the proposed SR-60 alignment. The second proposed station would follow the Union Pacific rail corridor alignment.

The proposed station on the SR-60 alignment would be located adjacent to the Puente Hills Mall, between S. Azusa Ave. and S. Albatross Rd. The mall has a significant amount of land area dedicated to surface parking, which could be redeveloped into the maglev station and structure parking for both uses.

There is a limited supply of large vacant parcels near the mall. The proposed maglev station would be surrounded by well established retail and industrial areas. In-fill development or redevelopment opportunities would primarily exist around the Puente Hills Mall, south of SR-60. Additional commercial retail and offices uses would be the most appropriate infill developments for this area around the station.

The second proposed maglev station is located along the Union Pacific rail corridor and Valley Blvd., adjacent to the Union Station intermodal yard. This proposed site is surrounded by established industrial uses, limiting the potential for redevelopment and introduction of new land uses that would be supportive of a maglev station. The opportunities and constraints of both proposed Industry station sites are illustrated in Figure 5 on the following page.

Meeting with City of Industry Staff

At a January 2, 2006 meeting to discuss technical items associated with the maglev project, City of Industry staff indicated that there had been discussion and planning with Cal Poly Pomona about relocating the Industry Metrolink commuter rail station adjacent to a proposed transit village on the campus. The station would improve transit availability for students and faculty at this important educational facility. The City of Industry encouraged further exploration of this proposed transit facility as a potential maglev station site in place of the locations identified above. These discussions are ongoing.



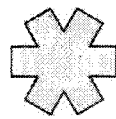
This site on Cal Poly Pomona campus, near the intersection of Valley Boulevard and Temple Avenue west of SR-60, could be considered as an alternative station location.



The Puente Hills Mall site in the City of Industry includes ample amounts of surface parking that could be redeveloped for a Maglev station.



The Union Pacific intermodal yard is a possible maglev station site along the Union Pacific alignment.



Major Activity Center



Redevelopment Opportunity



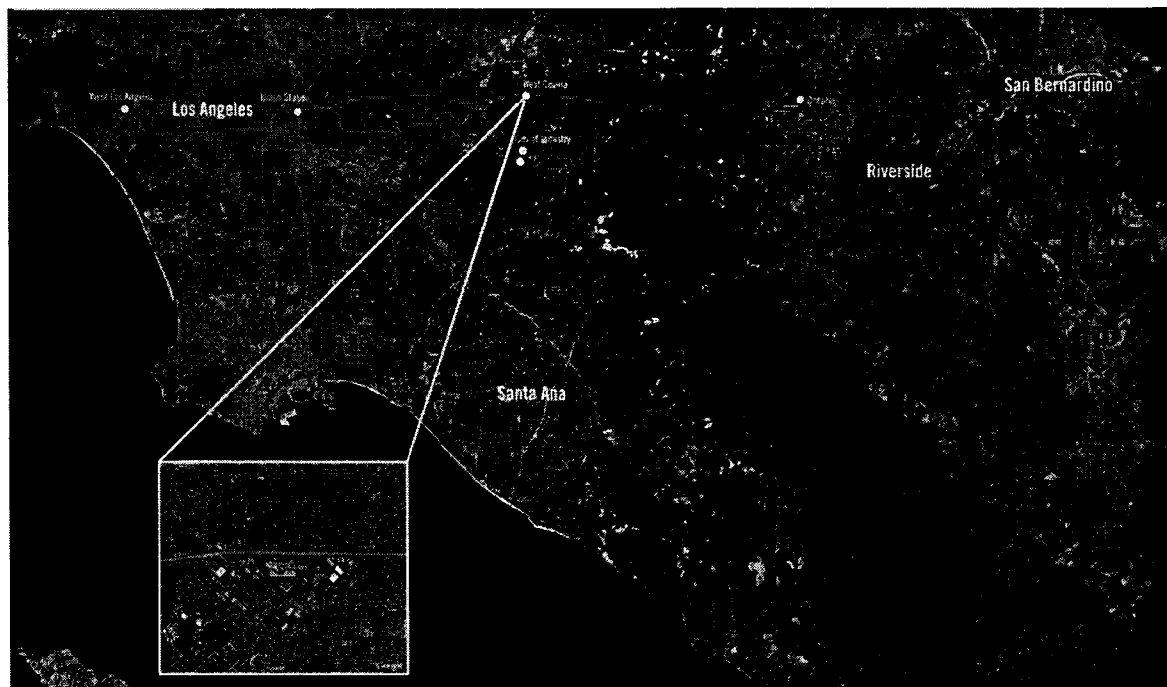
Barrier

Figure 5 — City of Industry Opportunities and Constraints

City of West Covina

Background: The City of West Covina is located 20 miles east of downtown Los Angeles. Currently, the city is home to over 111,000 people, with 17 square miles of land area. The city is substantially "built out" with few major vacant development sites remaining. Future population growth is not expected to be dramatic. The city is a residential and commercial center with limited industry. Retail merchandising is the principal business activity for the city.

The City of West Covina serves as a transit hub for bus service within the San Gabriel Valley. Together, Foothill Transit District and the Los Angeles County Metropolitan Transportation Authority (MTA), provide over 400 bus arrivals and departures in West Covina daily. The city is also served by two Metrolink train stations in the nearby cities of Covina and Baldwin Park.



Opportunities and Constraints:

The proposed West Covina maglev station would be south of the I-10, adjacent to Plaza at West Covina, between Sunset Ave. and Vincent Ave. The mall area provides extensive amounts of surface parking facilities, creating opportunities for placing a maglev station and structured parking designed to serve both the mall and the station.

Land uses to the north of the proposed maglev station location are primarily established single-family residential uses, limiting the potential for new development or redevelopment.

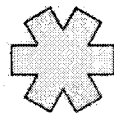
Opportunities for in-fill development or redevelopment of business office complexes and residential condominiums may exist for the area south of maglev station location, adjacent to the Plaza at West Covina and between S. Sunset Ave. and S. Vincent Ave. Because this area is south of the I-10 freeway, no barriers to pedestrian travel are anticipated. The opportunities and constraints of the proposed West Covina station site are illustrated in Figure 6 on the following page.

Meeting with West Covina Staff

At a January 12, 2006 meeting to discuss technical items associated with the maglev project, West Covina staff indicated that the owners of the shopping center, Westfield, may not be supportive of the proposed maglev station being located adjacent to their property. Opportunities to shift the station closer to West Covina City Hall or further discussions with Westfield need to be pursued before the proposed station location is finalized.



The Plaza at West Covina provides extensive amounts of surface parking. The mall is located adjacent to the I-10 freeway. These parking lots could be redeveloped to accommodate a maglev station.



Major Activity Center



Redevelopment Opportunity



Barrier

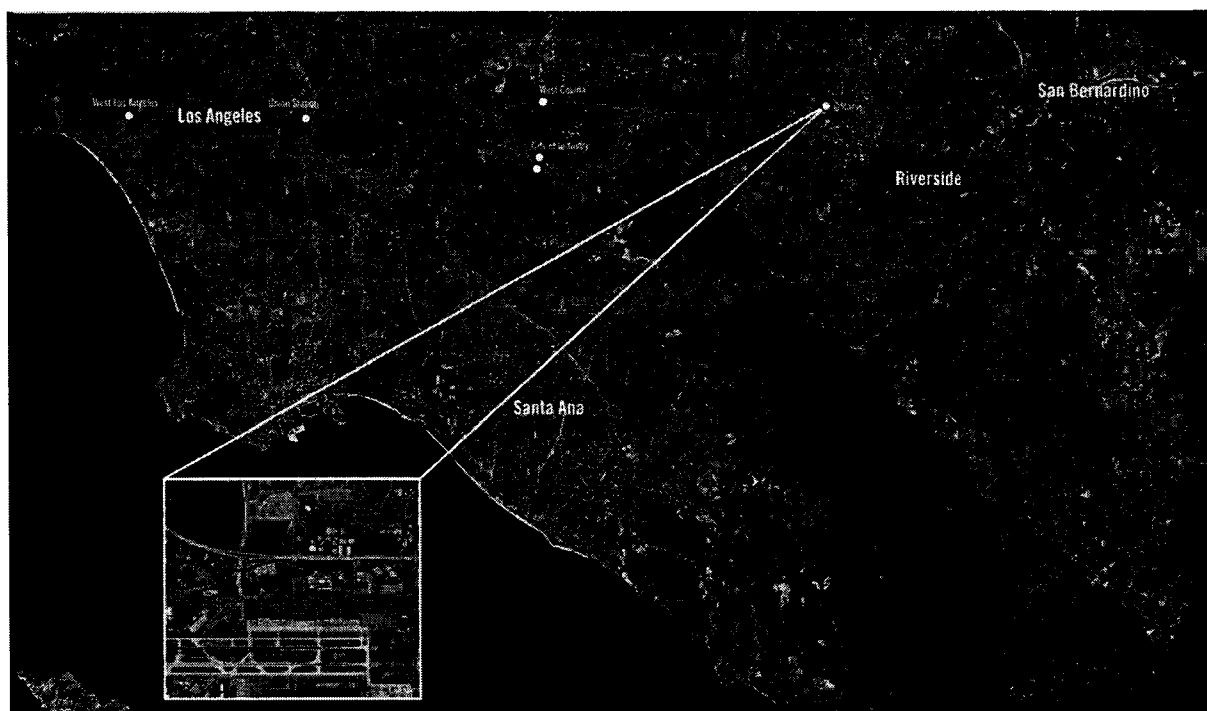
Figure 6 — City of West Covina Opportunities and Constraints

City of Ontario

Background: The City of Ontario is located in Western San Bernardino County and is part of Southern California's Inland Empire. The city currently encompasses 50 square miles of land, and is home to over 170,000 people. With the 1999 annexation of 8,200 acres of primarily undeveloped dairy farm land south of the city limits, the population of Ontario is expected to increase by at least an additional 100,000 people.

The City is located within an area experiencing extraordinary growth, including a growing middle and upper income population seeking refuge from costly coastal areas in Los Angeles and Orange Counties. The influx of more business professionals into the Ontario region has created a greater demand for upscale offices and commercial outlets complementing the solid industrial base already located in the City.

Also located within the city is Ontario International Airport. This airport is one of only two international airports in the Los Angeles Metropolitan Area, therefore making the City of Ontario a prime location for economic development.



Opportunities and Constraints:

The proposed Ontario maglev station is to be located adjacent to the terminal of Ontario International Airport. The close proximity to the terminal allows a seamless connection between the maglev system and the airport. The split design of the terminal does impede convenient pedestrian access as the distance to each terminal from the proposed maglev station is between 0.3 and 0.4 of a mile. As a result, a terminal shuttle or people mover may be required to connect travelers between the maglev station and the airport terminals.

North of the proposed station and the airport, there are large parcels of vacant and agricultural land both north and south of Interstate 10. Land to the north of I-10 is less accessible since the freeway acts as a pedestrian barrier. The land closest to the proposed station site is ideal for transit-oriented developments, with close proximity to an international airport, and access to the regional commuter rail service. However, development proposals would need to be in compliance with airport height and noise regulations. Primary land uses would be commercial in nature given the noise concerns associated with residential development near airports. There are approximately 200 acres of developable vacant or agricultural land located within one-half mile of the proposed maglev station.

Approximately 1.1 miles to the west of the proposed maglev station is the Ontario Convention Center and hotels, located near the intersection of Holt Boulevard and D Street. As of 2004, the convention center was hosting over 450 events each year, with approximately 45,000 room nights confirmed for these events. The success of the convention center will make it a very popular destination for travelers, with convenient access between the convention center and the maglev station being an important consideration. The opportunities and constraints of the proposed Ontario station site are illustrated in Figure 7 on the following page.



Ontario Airport is eastern terminus of the maglev IOS. This aerial photo illustrates the distance between the two existing airport terminals, and the potential for new development to the north of the airport.

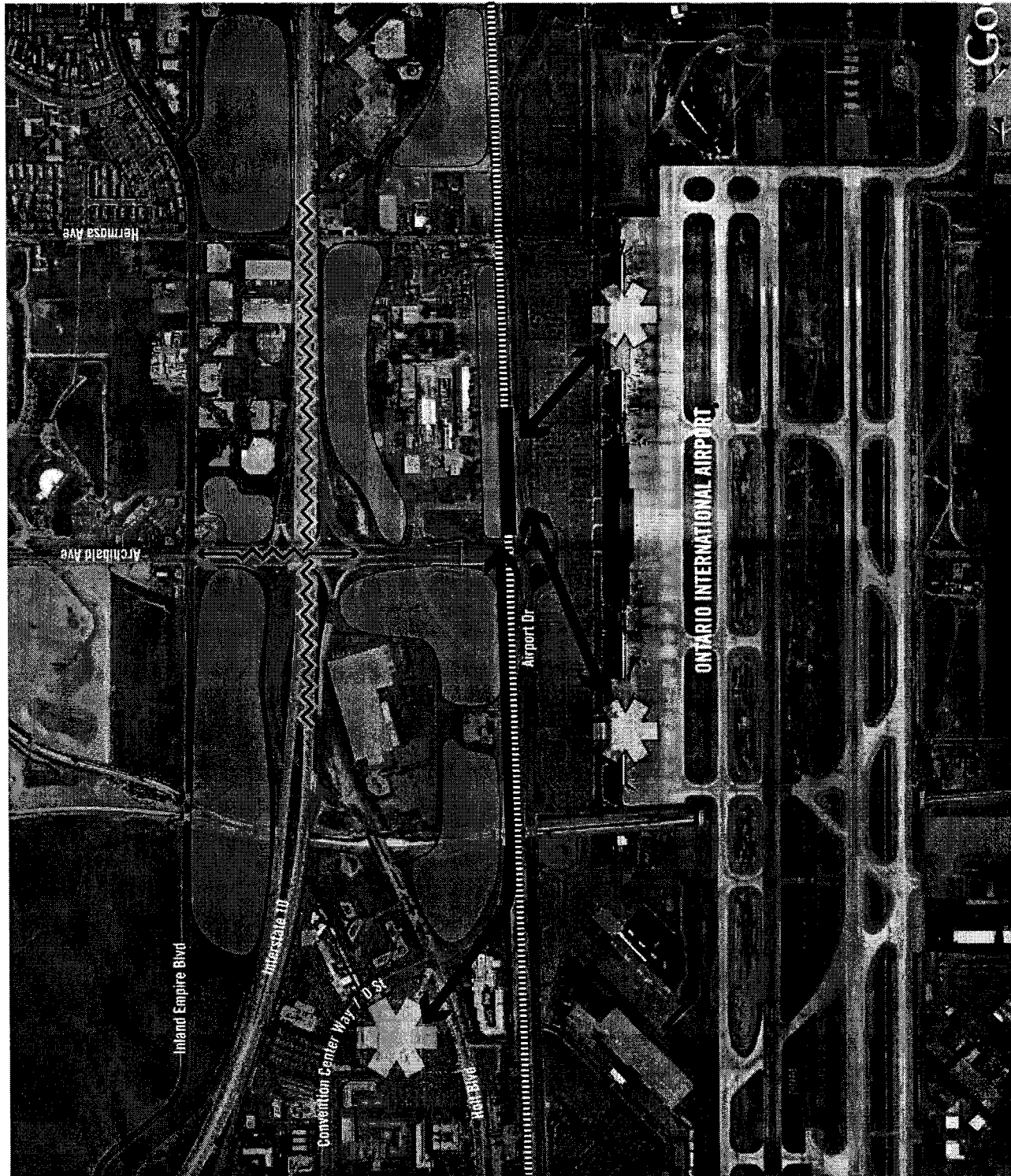


Figure 7 – Ontario Airport Opportunities and Constraints

2.1.6 MARKET ASSESSMENT OF TOD OPPORTUNITIES

West Los Angeles

Demand for Commercial Office and Retail Uses

Based on a recent Los Angeles County Economic Development Corporation (LAEDC) study, the West Los Angeles office market is still struggling following the dot-com market crash in the early part of the decade. In the second quarter of 2000, the office vacancy rate was 5.8%, but moved up over the 15% mark in the first quarter of 2002 and has since held at that level. The good news is that no new speculative space is under construction and despite the amount of vacant space, average monthly rental rates in the region remain high. The total inventory of office space available in the region is 45.1 million square feet as of September 2003.

The Westside is also the headquarters for some of Southern California's best known firms, including major financial companies and entertainment industry companies. Film production companies moving out of state have major implications for the region, as does the backlash against local production.

The retail industry in this area could be considered as an "export" industry, since the diversity and uniqueness of the base draws in customers from outside the region. The region has traditional malls including Century City, Fox Hills, Santa Monica Place, and the Westside Pavilion. However, the distinct shopping areas such as Third Street Promenade and Montana Avenue in Santa Monica, Rodeo Drive in Beverly Hills, and the Sunset Strip in West Hollywood make this area unique. The market is also highly competitive, with good locations at a premium.

Travel and tourism are key activities for the Westside with several distinct travel markets. The best performance has been located in Santa Monica, where the estimated 2003 occupancy rate was 71% with increasingly higher room rates.

Supply of Available Land

The station location has several challenges in terms of land availability for constructing a maglev station and its attached facilities and uses. Nonetheless, there are two sites that stand out as potential locations for a maglev station at this area. At the southeast quadrant of the intersection of Wilshire and the 405 there is a large surface parking lot that is roughly 10 acres in size, that could be redeveloped to accommodate a station. The other potential location is the northwest quadrant, between the Veterans Administration Hospital and I-405, which is mostly industrial in nature. This area, which is about 20 acres in size, could be redeveloped to accommodate a station and required facilities. Additional vacant land, roughly 30 acres in size, exists within the Veterans Administration Hospital grounds at the southwest quadrant in the form of vacant land and surface parking lots. This land could potentially be developed for support functions of the station, such as parking facilities and mixed use.

Likely Development Scenario

Due to the proximity of the proposed station site to a hospital facility and the limitation in availability of vacant land at this location, it is not likely that this site would attract significant additional development. It is likely that development in this site would be directly related to the operation of the maglev with support facilities such as park and ride, with some commercial and retail. High density residential uses are not likely to develop around this station.

Union Station

Demand for Commercial Office and Retail Uses

The recent LAEDC study defined the Downtown office market as one that has long been considered as a "troubled" market. This is a reflection of the vacancy rates that ran from the high teens to 20 percent or higher during most of the 1990s. This reflected a burst of office construction in the late 1980s/early 1990s, combined with falling employment due to mergers/acquisitions and business restructuring. There was a significant improvement by 2001 with the Downtown vacancy rate moving below the 20% level. This has continued to the present day. This reflected both corporate downsizing as well as some turmoil at Downtown law firms.

Among the attractions of the Downtown office market are competitive lease rates in institutional quality buildings (important during difficult economic times), plus the area's ability to draw from a huge labor pool due to the mass transit advantage. For example, during the fourth quarter of 2003 the direct-weighted class A rental rate (psf/month) in Downtown was \$2.17, compared with \$3.18 for Century City and \$2.43 in the Burbank- Glendale-Pasadena area.

Downtown has scored some significant leasing successes, and with no new construction and a recovering economy, vacancy rates should continue to move lower in future years. Despite the high vacancy rates, sales of trophy office buildings in Downtown have been strong during 2004, with one of the most notable purchases being Arco Plaza, whose new owners have started an aggressive renovation effort.

The Downtown industrial market continues to turn in an extremely strong performance, with a year-end vacancy rate of just 1.8% on a base of 283 million square feet. A modest amount of new space is under construction (776,950 square feet at year-end 2003), so vacancy rates should continue to run at low levels. Downtown is an attractive location due to the large labor pool, and good transportation access (the freeways as well as two major intermodal yards just to the southeast in Vernon/Commerce). One problem is the lack of large blocks of vacant land on which to develop modern product. And when land does become available, there is often competition for other uses. The average net weighted rental rate in Downtown (psf/month) is \$0.44, which is quite competitive when compared with surrounding areas.

Downtown's hotel occupancy rate held steady since 2002 at a disappointing 50.1%, according to data from PKF Consulting. The forecast calls for the Downtown occupancy rate to inch up in upcoming years, with a small increase in room rates. While both business and international travel is expected to improve, the key to a sustainable upturn Downtown depends on both the "Convention Center hotel" as well as the proposed retail/entertainment center adjacent to the hotel and convention center. Both of these projects are currently tied up in litigation between various parties, which will only delay a recovery in the Downtown hotel market.

Supply of Available Land

There is practically no vacant land available near Union Station. However, the proposed maglev station at Union Station as an elevated facility above the existing platform or access road is not that demanding for land. It could be built on top of the existing facility with land required basically for support columns while sharing some of the facilities with the existing operations at Union Station. Nonetheless, other sites surrounding Union Station could be redeveloped. South of Union Station, just across the Hollywood Freeway, there are about 30 acres of industrial land with considerable vacant land and surface parking lots. Similarly, north of Union Station about 15 acres of vacant land and surface parking are available as well.

Likely Development Scenario

Because of the existing nature of the site as a major transportation hub for the Los Angeles area, this site has a significant potential for transit oriented development in the future. The industrial sites south of the Hollywood Freeway might be an exception to that, due to plans to extending the railway tracks over the Hollywood Freeway and through these properties to connect back to the tracks running through the Los Angeles River. Property north of Union Station is more promising for development of mixed use, because of the potentially easier access to the station and greater circulation enhancement opportunities.

City of Industry

Demand for Commercial Office and Retail Uses

The City of Industry is bordered by four major freeways. The Pomona Freeway also intersects the Long Beach (I-710), San Gabriel River (I-605) and Orange (SR-57) Freeways, providing direct access to Orange County markets. The San Bernardino (I-10) Freeway borders the city on the north. This makes the city highly accessible from all parts of Southern California.

As the City of Industry is predominantly industrial, the industrial market at this area has a substantial impact on the City. The industrial vacancy rate in the San Gabriel Valley was only 1.2% during the third quarter. Nearly 2.3 million square feet of new space was under construction, indicating a strong and growing market. Despite the obvious demand, the average monthly rent (triple net) in the city was \$0.51 a square foot, lower than the Los Angeles County average of \$0.56/s.f. A real challenge for the city is finding land for new development.

The San Gabriel Valley's office market is healthy with a mid-2005 vacancy rate of 10.2%. At this level, developers start to think about new projects, but again there is the challenge of finding suitable locations, as vacant land in this area is running out.

Supply of Available Land

There are two proposed maglev station alternatives in the City of Industry. The first, located adjacent to Valley Boulevard could take advantage of the Union Pacific 46-acre intermodal rail yard with the cooperation of Union Pacific.

The second proposed maglev station is located on the SR-60 immediately north of the Puente Hill Shopping Mall. There are approximately 35 acres of surface parking associated with the mall which could be redeveloped to higher intensity uses.

Likely Development Scenarios

The proposed Valley Boulevard maglev station location is surrounded by both new and old industrial buildings and therefore lends itself to higher intensities of industrial and commercial office uses. It is unlikely that this area would attract either commercial retail or high density residential uses. Approximately half of the 46 acre intermodal yard would be required for park and ride parking structures, leaving 23 acres for higher intensity commercial office and industrial uses to develop in association with the proposed station. Limited access to this proposed station area may restrict the amount of development that can be accommodated without significant improvements to the existing road system. It is important to note that any redevelopment opportunities associated with this proposed station location would be entirely dependent on the cooperation of Union Pacific.

The proposed SR-60 maglev station location is surrounded by commercial retail uses, the primary use being the Puente Hills mall located to the south. Approximately half of the 34 acre surface parking area of the mall would be required for park and ride and transit facilities associated with the proposed station, leaving approximately 17 acres available for redevelopment. Given the proximity of the 60 Freeway together with established land use patterns, it is unlikely that this area would attract high density residential uses. However, this site would be suitable for higher intensities of commercial retail, commercial office and hotel uses.

West Covina

Demand for Commercial Office and Retail Uses

West Covina is centrally located along major transportation routes including miles of frontage on I-10, one of the region's busiest freeways. West Covina's ten mile radius population is 1.5 million. West Covina's powerful retail pull and freeway-easy location draw shoppers from a trade area much larger than just ten miles. Over the past years West Covina has seen retail development continue unabated. The city stands out as one of the region's premier retail opportunities with many shopping centers that are still continuing to grow. Second to Pasadena, West Covina has the most retail establishments in the San Gabriel Valley, with the majority of them being small businesses employing less than 100 employees.

Hotel occupancy rates in the area are about 70% with an average room rate of about \$95 per night, which is an increase of about 5% over the previous year. Forecasts for growth for next year show a slight increase in both supply and demand for hotel rooms, with a slight increase in occupancy rate and room rates. This is an indication of a healthy growing tourism market in this region.

The San Gabriel Valley's office market is also healthy with a mid-2005 vacancy rate of 10.2%. At this level, developers start to think about new projects, but again there is the challenge of finding suitable locations, as vacant land in this area is running out.

Supply of Available Land

The proposed West Covina maglev station would be located directly north of Plaza at West Covina, a city-serving retail mall. There are approximately 25 acres of surface parking north of the Plaza which could be redeveloped.

To the north, across the I-10 freeway, the land uses are made up of stable single family neighborhoods and therefore any development associated with the proposed maglev station should be oriented south of the I-10.

Likely Development Scenario

The surface parking lots north of the Plaza at West Covina provide the major development opportunities associated with this maglev station, with the cooperation of the owners of the mall. It is likely that at least half of the available 25 acres would be required for parking structures for park and ride, leaving 12 acres available for development. Given the proximity of the I-10 freeway and the surrounding commercial retail and office uses in the ¼ mile station area surrounding the proposed station, it is likely that the 12 acres would redevelop over time with more intensive commercial retail and office uses. Building heights and intensities may be an issue for the surrounding neighborhoods and therefore it would be prudent to be conservative in estimating the development potential of this station location.

Ontario

Demand for Hotels, Commercial Office and Retail Uses

Hotel Market: The Ontario lodging market has remained relatively strong in recent years, as new supply has been rapidly absorbed in the market and occupancy and average daily rate have maintained relatively steady growth. A continued growth in both average daily rates and overall room occupancy through 2009 has been estimated, despite a temporary setback that resulted from a combination of a sluggish economy, the September 11 terrorist attacks, and the war with Iraq. Future demand is projected to be generated by continued growth within the commercial sector in Ontario, as well as improved performance of the Ontario Convention Center.

Ontario is in a strong position to continue its steady growth course. By 2009, the market should reach a stabilized occupancy level of 76 percent. The analysis and projections of average daily rate and occupancy are based upon the assumption that only those hotels identified as additions to supply will be added to the market. If supply actually introduced in the years to come exceeds the amounts assumed herein, a lower future market occupancy would be expected, and vice versa.

The future development of a full service hotel is recommended, rather than more limited service hotels, as that would provide a greater opportunity to both capture existing demand and induce additional demand to the market. The conclusions are based upon specific assumptions regarding additions to supply, cooperative marketing, and the efficient and effective management and marketing of the Ontario Convention Center.

Office Market: In 2004 and 2005, Ontario and the Inland Empire saw a growing demand for office space due to the expansion of population-serving office firms, large back-office operations, corporate offices, professional groups and knowledge based industries. As recently as 2003, the inland region had the third highest net office absorption in the U.S. after Washington, D.C. and Los Angeles.

Ontario has the third largest amount of office space in the Inland Empire. Ontario's total vacancy rate with Class "A", "B", and "C" office space is below the Inland Empire's average and ranked fourth in the region and is well below its other large markets: San Bernardino and Riverside.

Ontario has some of the Inland Empire's strongest competitive advantages for drawing high-end office firms. These start with LA-Ontario International Airport (ONT). It is a crucial factor as corporate headquarters, tech firms and professionals often need to rapidly fly-in customers and investors or fly-out products, sales staffs and technicians. In addition, every Ontario office building is hard wired for broadband communications, connections that will be required in all of the homes to be built in the upscale New Model Colony. Ontario is also benefiting from the mass influx of younger executives, professionals and technology workers to the western Inland Empire's new high-end neighborhoods. Another competitive advantage for the office market in Ontario and the Inland Empire is the region's lower space costs. This is especially beneficial to office firms like regional banks, mortgage operations, insurance companies, utilities and call centers that require large spaces and/or need to save on wages and salaries. However, Ontario's prime location does make its offices the most expensive in the inland region.

A major factor driving the office market of Ontario and the Inland Empire is the area's huge and growing population (3.6 million) and economy (1.1 million jobs). From 2000-2010, the region is expected to add 826,179 people (26.4%) and 337,200 jobs (33.6%). It thus needs a large and growing base of office operations to serve its residents and firms. However, Southern California's coastal counties average 17.7 to 23.9 square feet of office space per person while there are only 4.6 square feet in the inland area. And, the coastal areas average 41.8 to 47.8 square feet of office space per job versus just 14.7 square feet in the Inland Empire. These data mean that the inland region is grossly underserved. In part, this has occurred because many companies have chosen to handle the area from their coastal offices. However, the Inland Empire's size and growth means that eventually they will find themselves at competitive disadvantages to local firms. Already a change is evident since this "off-shore" strategy often comes from older leaders who do not want to move or open operations far from their coastal homes. As they are being replaced, commercial brokers find the new generation is much more willing to open inland operations. Often, these younger executives and entrepreneurs already live in the area. Putting these facts together, Ontario has entered the period when it can expect to see growing demand for offices from high-end firms, back-office operations plus population and business serving companies. These forces will be with the city for years to come.

Retail Development Opportunities

Superior convenience of Ontario within Southern California enables local businesses to capture taxable sales from residents of surrounding communities; Resident customer base within a 10 mile radius: more than 800,000 people; 2001 total taxable sales: \$3.62 billion (highest in San Bernardino & Riverside Counties); Per capita taxable sales: \$20,953 (largest of the region's cities of over 100,000 residents).

Ontario's taxable retail sales are strong. The city's retail growth surpassed other cities in San Bernardino County. In 2002, Ontario's retail sales passed the City of Riverside's to rank first in the Inland Empire, even with a smaller population. Given the importance of the retail sales tax to California municipalities, taxable retail sales *per capita* is a barometer of a community's ability to provide services to its population. Since 2000, Ontario's sales per capita have been the fourth fastest growing among the region's major cities. By 2003, the city's per capita sales were much higher than San Bernardino County's average. Among the Inland Empire's 48 cities, Ontario's per capita sales ranked sixth behind Montclair, Palm Desert, Temecula, Big Bear Lake and Rancho Mirage. From 1990-2002 (*latest year with sector data*), Ontario's retail trade nearly tripled.

Supply of Available Land

There are approximately 200 acres of vacant land located north of the Ontario Airport within a ½ mile of the proposed maglev station. This does not include existing commercial and industrial uses which may redevelop over time in conjunction with a major transit hub.

Likely Development Scenario

Given the proximity of the airport, proposed expansion plans, existing and proposed land uses, as well as restrictions which are placed on residential development, it is likely that with the proposed maglev station, the surrounding lands would develop into higher intensity commercial office, retail and hotel uses.

Most of the 200 acres would be available for development at higher commercial office, hotel and retail intensities if it is assumed that the majority of the park and ride requirements would be met by intensifying the surface parking lots into parking structures to accommodate the required short and long term parking needs of a terminus maglev station.

While heights of buildings would be restricted by airport flight path regulations, intensities of land uses could increase significantly from that in the current regulations.

2.1.7 POTENTIAL TOD IMPACTS ON IOS RIDERSHIP

Integrating land use development adjacent to the maglev stations will be an integral part in fostering ridership for the system. It will be important to encourage the development of land uses that supportive to the maglev system and the station. As the area surrounding the stations begins to redevelop and densities increase, it will be essential to link these new developments with the station. The development of major activity centers will be a significant component of enhancing ridership at each station.

In 2001 and 2004, SCAG's RTP included an analysis which looked at the rate of growth for cities with a maglev station and those without. Growth rates were consistently higher in cities that contained a maglev station. The station acts as a magnet for new intensified development that could assist in increasing ridership for the system, as well as contributing to the growth and vitality of the surrounding city.

The design of TOD near each maglev station will be an essential component of increasing the ability of the new development to have a positive contribution on ridership levels. The design and site planning for the new developments must emphasize pedestrian and transit connections to the station, facilitating easy access from nearby developments to the maglev system. Given the large catchment areas of the proposed maglev stations, the station connection enhancements will also have to be expanded to ensure adequate automobile access. It is anticipated that a significant percentage of maglev passengers will access the station via automobile. Since many of these passengers will travel more than ½ mile to reach the maglev station, connections and enhancements to the regional roadway and freeway networks will assist in providing adequate automobile access.

Current maglev forecasting models assume a modest catalytic and induced demand resulting from the introduction of the regional transit system. Thus far, very conservative estimates for how much additional development would be attracted to the proposed maglev stations as a result of maglev have been used in ridership forecasts. Additional analysis is required to estimate a more market-oriented development potential.

2.1.8 POTENTIAL ADDITIONAL REVENUES FROM TOD

Below, we set out ways that additional revenues from TOD could be obtained to help finance the proposed maglev capital costs. Additional studies on this topic are underway or will be undertaken in the near future. The purpose of this section is to identify the different sources of revenues and how they relate to land use.

Benefit Assessment Districts

These are specially designated districts around transit stations, for which landowners make cash contributions (usually pro-rated on the basis of land area, assessed property values, or distance from the transit station) to help finance the public facility. In principle, such assessments attempt to put into operation the notion of “value capture” – enabling the public entity to share in the gains in property value capitalized from improvements in site accessibility. Typically, a majority of property owners within a geographically defined zone must agree to the creation of such a district. Because of the difficulties inherent in creating benefit assessment districts, they have not been widely used as a mechanism for promoting development.

Tax Increment Financing

Under this approach, the property tax base within a specially designated area is frozen at a certain point in time. All incremental gains in property tax receipts above the base level are earmarked for retiring the bonds of major public investments made within the district. In reality, tax increment financing involves less public-private sharing of revenues than an earmarking of property taxes to a specific area, usually a redevelopment district. As such, it involves the redistribution rather than an augmentation of tax receipts. Some municipalities use tax increment financing generated in successful districts to undertake redevelopment in other areas of the city. These funds may be used for a variety of activities including: land acquisition, site development, or environmental clean-up in order to spur development projects.

Transfer of Development Rights

Transfer of Development Rights (TDR) is a process whereby development rights of one lot, parcel or area of land in one district are transferred to another lot, parcel or area of land in another district. Certain districts may be identified as “sending districts” and others as “receiving districts”. In the TDR program, sending districts are usually subjected to density reductions. This means that owners in the sending districts cannot develop at formerly allowed densities; however, they are awarded development rights, which are ‘severed’ from the land ownership and can be transferred elsewhere. Some cities put values on the development rights that will be transferred and establish “banks” to purchase these rights from landowners in sending districts and sell them to owners in receiving districts. Landowners in receiving districts can apply for zoning incentives to increase allowable densities. In order to qualify for increased densities, they must purchase development rights from either the city development rights bank or from owners in the sending district.

Research must be undertaken to determine what types of areas are appropriate to designate as sending districts – these are usually legislated and typically include areas to be protected such as, scenic, recreational, agricultural, open space, historical, cultural, and aesthetic assets. Receiving area(s) must be identified that can accommodate increased development that will be ‘transferred’ from the sending district(s).

Another approach is a voluntary TDR program. In this manner, permissible densities in the sending district would not be reduced but rather, the development permitted in that zone can be severed and transferred to the receiving district. Density incentives in the receiving district could be given to developers in exchange for cash deposits to a dedicated fund, which could be used to buy conservation easements from willing landowners in the sending district.

Partial TDR programs can also occur whereby a portion of the development rights are transferred and the remainder is clustered on unconstrained parts of land.

2.1.9 FRAMEWORK FOR TOD DESIGN GUIDELINES

Although the existing character and future development potential of different areas along the maglev corridor vary, there are a number of general TOD elements, which should be introduced to foster a successful marriage of land use and transit. Additional site-specific recommendations will follow for each of the station areas.

LAND USE

- ❑ **Mixed-use.** A variety of complementary uses are appropriate near transit stations. Not only should different uses be located in the same area, they often should be integrated horizontally or vertically as elements of a single development. Residential uses, in particular, should be encouraged.
- ❑ **Compact Development and Higher Densities.** Compact, higher density development utilizes land, public infrastructure, and services more efficiently. Allowing or requiring more concentrated activities and shorter distances between destinations will promote walking and transit in and around station areas.
- ❑ **Pedestrian-Oriented Uses.** Transit station areas should emphasize a use mix that is geared less towards motorists and more toward pedestrians. Drive-through facilities and uses with large surface parking lots should not be allowed in the central portion of the station areas.

SITE DESIGN

- ❑ **Pedestrian Accessibility, Safety, and Comfort.** Every trip begins and ends by walking. An essential element for a successful TOD is to make walking and transit convenient, safe, and comfortable alternatives to the automobile. Along with the land use considerations noted above, it is important for new development to provide pedestrian facilities, such as public sidewalks, and on-site pathways, with direct connections to local destinations. In addition, amenities, such as landscaping, street trees, shelter from the elements, lighting, and buffering from heavy traffic, should be part of any pedestrian system improvements.
- ❑ **Human-Scale Design.** Development in station areas should relate to pedestrians. Buildings that are close to and oriented to the street, landscaping or screening for parking and storage areas, and public spaces should be part of new station area development.
- ❑ **Transitions Between Different Densities and Uses.** The development density proposed for selected station areas is higher than the densities of surrounding neighborhoods. Therefore, the physical relationship between different uses should be respected by retaining similar building height and bulk among adjoining buildings and by providing appropriate height, bulk, and density transitions between different districts within and adjacent to the station area.

STREET PATTERN AND PARKING

- ❑ **Street Connections.** To promote efficient travel for all modes, street systems in the station areas should feature small block sizes and interconnected streets. When necessary, larger block dimensions may be used if pedestrian access is provided in a manner consistent with the smaller blocks.
- ❑ **Street Design.** Streets within the station areas are recommended to be designed to minimize pavement widths for vehicles, provide sidewalks, and include safe and convenient street crossings for pedestrians. Buffering for pedestrians through the use of wide sidewalks, planter strips, bicycle lanes, and/or on-street parking may also be employed.

- ❑ ***Reduce the Prominence of Parking.*** In order to achieve the densities and level of desired activity in the station areas, alternatives to large parking lots between buildings and the street should be required. Surface lots should be required to be located to the side or the rear of the building to facilitate pedestrian access from the street. Surface parking areas, which abut the street, should have perimeter landscaping or buffering. Reduced minimum parking standards, maximum parking ceilings, shared parking between complementary uses, and/or structured parking should be employed to reduce the land area consumed by surface parking. On-street parking should be allowed to contribute towards satisfying off-street parking requirements for adjoining uses.

Transition to TOD Zoning

Because TOD is dependent upon integrated transit and land use, the actual implementation of many of the TOD zoning recommendations may only be appropriate if the anticipated transit service will be provided. At the same time, it is more difficult to obtain adequate transit funding without the commitment to provide transit-supportive land use.

One method to resolve this “chicken and egg” issue is to develop “self-actuating” land use policy and zoning, which commits the local jurisdiction to implement important TOD elements such as mixed-use, higher densities, and reduced parking requirements once the transit service is assured. This could include adopting:

- Comprehensive plan policy language, which indicates what zoning ordinance amendments a jurisdiction will implement once the complementary transit service is assured.
- A zoning map, which shows the current zoning and the TOD zoning permitted by the comprehensive plan. Once transit is available as contemplated in the general or specific plan, a zone change, or similar shift in development requirements, will be all that is necessary because the policy direction has already been set.
- A specific plan and/or zoning ordinance with two tiers of standards and requirements – one for the current conditions without transit and a second tier to be used once the necessary transit service is assured. These tiers could include variable density and parking standards for example.

The purpose of any self-actuating method is to demonstrate the local support for TOD without prematurely committing to development density and character that may be inappropriate without the planned transit element.

2.1.10 IMPLEMENTATION STRATEGY

Planning Modifications to the Local Regulatory Framework

This section of the report focuses on the changes that may be necessary in order to facilitate Transit-Oriented Development (TOD) within certain maglev station areas and along the maglev route after land use options and policy recommendations are developed. As the maglev system involves a variety of jurisdictions – the cities of Los Angeles, City of West Covina, City of Industry and the City of Ontario -- there will be different regulatory devices used by each city in order to achieve the realization of the desired station area / corridor development. The end result of the TOD study effort will be for each of the cities to integrate the recommendations of the TOD station area plans into their respective development policy and regulatory systems. This may involve refinements to the General Plans, existing specific plans, and will also likely involve zoning code amendments.

It is hoped that by using the appropriate implementation mechanisms, new patterns of development that are supportive of transit use will be achieved in selected station areas and corridors in Los Angeles, West Covina, City of Industry and the City of Ontario; and further, resulting in vibrant places for residents and workers.

The following provides a discussion of the various types of land use regulations and financial tools that might be employed in implementing TOD along the maglev system. It is important to note that these are presented for discussion purposes at this stage – specific policy recommendations would be made after discussions have been held with each of the cities and a determination is made as to how well each type of regulation/financial tool is suited to accommodating the kinds of change sought in each station area.

Land Use Regulations

General Plan: State planning law requires that all cities adopt a general plan. The general plan is a comprehensive, long-term planning document for a city that provides a framework for its physical development and addresses several related elements including: land use, housing, traffic, natural resources, open space, safety, and public facilities. All land use approvals are required by law to be consistent with the general plan, including zoning and subdivision approvals.

In addition to identifying community goals and policies respecting land use and development, the general plan serves as a basis for decision-making and provides the rules to be followed in undertaking development within that particular community.

Cities will need to identify relevant policies that can be incorporated into their general plans in order to create station area / corridor planning regulations that are supportive of transit-oriented development.

Zoning: Zoning is what shapes cities through the regulation of building size, population density and the purpose for which land is used. It is the key tool for carrying out planning policy and regulating physical growth. It establishes built form controls through height and setback regulations and separates incompatible land uses. Zoning is the essence of planning in that zoning ordinances implement the goals, objectives and policies of the general plan. Thus, zoning ordinances must be in conformance with the general plan.

City zoning codes establish several districts within the city that delineate various zoning classifications applicable to those areas. Primary zoning districts are established on a city-wide basis and provide regulations regarding permitted uses, lot dimension requirements, building bulk requirements, yard requirements, density bonuses and other performance standards.

Overlay zoning districts may also be used to provide an additional layer of special regulations to promote specific objectives unique to an area such as pedestrian oriented development, discouraging commercial parking lots or height restrictions.

Overlay Zoning: Overlay districts may be created in certain areas because of special circumstances in each of those places. The provisions contained in overlay zoning apply in addition to the provisions of the zoning code and can be either more restrictive or more permissive in terms of what they allow. The overlay district is superimposed on the zoning map district designations and can encompass full or partial zoning district boundaries.

Overlay zoning allows cities to adopt special provisions for particular areas of development opportunity or constraints without having to change the provisions of the zoning code, which would be applicable to all land parcels in the area. Local cities will need to consider whether objectives can be achieved by amending the zoning code or whether an overlay district is needed due to a high number of special circumstances. Overlay district provisions should be clearly written in order to guide or provide incentives to developers and approval agencies.

Transit Overlay Districts: These zones are used to direct and encourage transit-oriented and pedestrian-friendly development within light rail station areas. They can be used as long-term provisions or in advance of the adoption of specific plans around light rail stations. Transit overlay districts would identify permitted land uses and development standards and may also contain provisions prohibiting auto-oriented uses and other uses that are not supportive of high frequency transit service.

Interim Zoning: There are circumstances in which land owners will submit a development proposal that may be in conflict with an area under study by a city for a general plan, specific plan or zoning proposal. This eventuality is likely in a few locations along the maglev alignment that are proposed for transit-oriented development study. In this type of situation, cities may adopt interim zoning ordinances prohibiting certain uses which may be in conflict with what is under consideration with respect to the general plan, specific plan or zoning action. In California, a four-fifths vote of city council is required for adoption of interim zoning ordinances.

There are time limitations for interim zoning. If an interim notice is adopted without notice and hearing, it is effective for 45 days. After notification and a public hearing, city councils may extend an interim ordinance for 10 months and 15 days and subsequently for an additional 12 months. Extensions also require a four-fifths vote of city council.

Interim ordinances are invoked as matters of urgency in California and before adopting them, city council must make a determination that there is a threat to public health, safety or welfare.

Specific Plans: Specific plans provide a mechanism for implementing general plans on an area-specific basis. They serve both as policy and regulatory documents. Policy direction and development concepts contained in specific plans must be consistent with the general plan of the city within which they are located. Development standards and zoning contained in specific plans can diverge to address the unique objectives and provide regulatory controls of the specific plan area.

Incentive Zoning: Incentive zoning is used to encourage developers to provide community benefits (open space, parks, public plazas, affordable housing, seniors housing, day care or other amenities) in exchange for such incentives as: more intensive development than what is permitted in the zoning code, adjustments to height, open space, use or other zoning code requirements. The purpose of incentive zoning is to further community objectives in accordance with planning policy for the area. Zoning districts that will allow for the awarding of incentives need to be designated and incorporated into the zoning maps of the city. It will need to be determined whether or not the municipality has the capacity to absorb the additional development that would potentially be created by incentive zoning.

The major drawback to incentive zoning is that there are no guarantees that the benefits will be provided, as developer participation is voluntary. The benefits to the developer must be significant enough for them to want to participate.

Incentive zoning might be used to give density bonuses to developers of housing within $\frac{1}{4}$ - $\frac{1}{2}$ mile of the maglev stations, for example.

Mixed Use Development: Some cities are designating mixed-use zones to allow for a broad range of land uses. This can be achieved through a site plan or specific plan. Mixed-use development is particularly appropriate around transit stations and in transitional, or redeveloping, areas. Mixed-use zones can be floating zones that promote coordinated site planning and design and high density, active, urban environments. They provide for a variety of housing types and densities and support retail, office, and light industrial in addition to residential uses.

Mixed-use development helps to add diversity and vitality to neighborhoods and downtown areas by providing activity for longer periods of time throughout the day than single-purpose land use districts would. In order for a mixed-use area to be successful, the levels of commercial and residential development contained within it must be mutually supportive. Clear objectives must be established when using mixed-use development. Mixed-use developments have the best chances for success when clustered in compact areas surrounded by dense residential uses.

The character of the station area in question will determine the type of regulations required. For example, neighborhood commercial districts might have provisions limiting the size of individual businesses in order to limit impacts on residential uses and promote a local market area. Parking areas might also be restricted in these areas.

Vertical Mixed Use (Ground Floor Commercial Requirement): This means the mixing of uses within the same building and it allows for different uses to be in close proximity thereby encouraging walking, bicycling and transit use. Vertical mixed uses are most successful in areas with dense commercial uses and a lot of pedestrian activity. Residential uses should not be permitted on the ground floor in these buildings and zoning ordinances should rely on street-front façade standards (ie. 80% of a building's street-front façade should be occupied with commercial uses) to achieve the desired street-level environment.

Minimum Densities: In many municipalities, residential development is often constructed at much lower densities than what is permitted in zoning codes. Simply zoning for higher densities does not guarantee that the intended densities will be built. Thus, additional measures may be necessary to achieve the desired levels of development. In order to achieve transit-supportive densities it is appropriate to consider establishing a range of minimum and maximum densities. Smaller lots (i.e. less than $\frac{1}{2}$ acre) should be exempt from the minimum requirement as it is often impossible for minimum densities to be achieved on these lots. A review of local subdivision

regulations (respecting lots and condominium units) should also be undertaken in order to ensure that establishing minimum densities does not unnecessarily cause developments to be above the threshold lot number for tentative and final subdivision maps. It may be necessary to increase this number in order to facilitate development.

Parking Maximums: As a means to control the over-supply of parking in the station area, the maglev station cities should consider revising their respective parking ordinances to reflect parking *maximums* versus parking *minimums*. Incremental revisions that reduce parking supply, in direct proportion to increased transit service, will help balance transportation in and around maglev stations and support transit use. Such parking management policies are common in 'TOD Cities,' such as San Diego and Portland.

Prohibiting Uses: Compatibility issues can be addressed to a degree through the prohibition of uses that would have undesirable impacts or detract from the purposes of the district, such as auto-oriented uses in a mixed-use or transit-oriented development district. Residential uses, other than multi-family, might also be prohibited in mixed-use and TOD zones.

Urban Design Guidelines: In order to promote compatibility within mixed-use and transit-oriented development districts, development needs to be aesthetically and functionally compatible with adjacent uses. However, flexibility needs to be maintained in order to not place unnecessary burdens on development. Thus, guidelines, as opposed to standards, might be appropriate tools for achieving both flexibility and compatibility. Guidelines would give developers a choice for compliance. Some municipalities use performance-based systems where a developer would receive points for incorporating a range of design elements in a development. A minimum number of points would have to be achieved in order to receive development approvals. This would give options to the developer as to which design recommendations they want to emphasize. This would be in addition to some absolute design standards that must be met. Another method for achieving design guidelines is to offer incentives for meeting them.

Conditional Use or Special Permit Approval: A flexible approach to land use regulation can be achieved through allowing development decisions to occur by "special permit". Uses that meet certain standards or conditions that are contained in the zoning code are allowed through special permit. Special permits are used mainly to protect neighborhoods against disruptive uses that might bring a lot of noise, odor or traffic, or that would be somehow incompatible with the neighborhood. More and more, major development proposals, such as shopping centers and office parks, are also becoming subject to special permits in order to allow for greater flexibility in examining their impacts and to give the ability to impose conditions to lessen impacts.

2.1.11 TOD NEXT STEPS

This report has summarized the potential for transit oriented development associated with the proposed maglev stations in Los Angeles, West Covina, City of Industry and the City of Ontario, based on information provided by the cities and information obtained from a variety of sources. As set out in the recommendations below, there is additional planning for transit-oriented development that can be undertaken as part of next phases of the maglev study or by the cities.

1. The City of Ontario's proposed maglev station, located north of the Ontario Airport provides enormous opportunities for transit oriented development to serve the airport and the maglev system. Over the course of the next phase of the study, additional specific policies and plans with respect to new development should be developed in conjunction with the City of Ontario and Los Angeles World Airports (LAWA) to help realize this potential.
2. The proposed maglev stations in West Covina and the City of Industry have some potential for TOD, but would require the cooperation of private landowners that control the parcels of land adjacent to the proposed maglev stations that would be the sites of transit oriented development. Over the course of the next phase of the study, the landowners should be contacted to explain the maglev proposal, outline the proposed benefits of the maglev system, as well as determine their interest in redeveloping their properties in conjunction with a proposed maglev station. Once that has been undertaken, additional specific policies and plans with respect to new development should be developed in conjunction with the affected city and agencies.
3. The Union Station planning area, located on the periphery of downtown Los Angeles, is currently experiencing a development boom. A proposed maglev station would only enhance the potential for additional transit oriented development. Over the course of the next phase of the study, additional specific policies and plans with respect to new development around Union Station should be developed in conjunction with the City of Los Angeles that would enhance the proposed maglev station.
4. There are several potential maglev station alternatives on the west side of Los Angeles, generally located near the Veteran's Hospital. The transit oriented development potential of the West Los Angeles maglev station is dependent on the development proposals that have been presented to date for the site. Over the course of the next phase of the study, additional specific policies and plans with respect to new development should be developed in conjunction with the City of Los Angeles that would enhance the proposed maglev station.

REFERENCE LIST

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3. *Parsons Brinckerhoff Quade & Douglas, Inc. and IBI Group*, "Transit Oriented Development: Planning Framework", 2003, Irvine, California.
4. *Parsons Brinckerhoff Quade & Douglas, Inc. and IBI Group*, "Transit Oriented Development: Assessment of Barriers to TOD", 2003, Irvine, California.
5. *Parsons Brinckerhoff Quade & Douglas, Inc. and IBI Group*, "Transit Oriented Development: TOD Best Practices", 2004, Irvine, California.
6. *PKF Consulting*, "Analysis of the Lodging Market within the City of Ontario, California", 2004, Los Angeles, California.
7. *Website of City of Industry, California*, <http://www.cityofindustry.org>, accessed on January 5th, 2006.
8. *Website of City of Ontario, California*, <http://www.ci.ontario.ca.us>, accessed on January 5th, 2006.
9. *Website of City of West Covina, California*, <http://www.westcov.org>, accessed on January 5th, 2006.

MEMO

ITEM 5.2

To: Maglev Task Force Members
From: Hasan Ikhrata, Director Planning and Policy, SCAG
Date: February 9, 2005
RE: Support Funding Options for Shanghai Maglev Trip

RECOMMENDATION:

Staff recommends that the Maglev Task Force support any or all of the following funding options to send a delegation of five elected officials on a fact-finding trip to Shanghai in March, 2006. Two SCAG staff members will accompany the delegation. The Regional Council previous approved the use of General Funds to send one staff member. Other funding sources will be used for the second staff member.

- **Option 1.** The SCAG delegation will pay their own airfare cost only, and the travel expenses in Shanghai including hotels, meals, and incidentals costs will be paid by the Shanghai Maglev Transportation Institute (SMTI). The SMTI will invite SCAG delegation.
- **Option 2.** A non-profit organization (NARC or International Trade Center) will sponsor the trip by providing only airfare expenses for the delegation, and the SMTI will sponsor all expenses in Shanghai.
- **Option 3.** A non-profit organization sponsors all the expenses including airfare and all expenses in Shanghai.
- **Option 4.** SCAG General Fund supports the airfare for the delegation, and the SMTI will support all expenses in Shanghai.
- **Option 5.** SCAG General Fund supports the airfare for the delegation, and all expenses in Shanghai.

SUMMARY:

During the July 7, 2005 Administrative Committee meeting, staff briefed members on the action taken by the Maglev Task Force to organize a trip to Shanghai, China for a delegation of 15 elected officials and staff members from SCAG, paid with General Funds. The Administrative Committee and the Regional Council denied the use of the General Fund for this trip. Staff has since explored many funding possibilities including private, non-profit and government sources. These options are listed above for consideration by the Maglev Task Force.

MEMO

ITEM 6.1

To: Maglev Task Force Members

From: Alan Thompson, SCAG

Date: February 9, 2006

RE: Regional Aviation Strategy

SUMMARY:

On January 23, Mark Pisano made a presentation to the Los Angeles World Airports (LAWA) Board of Commissioners on how SCAG and LAWA can work together to develop a regional aviation strategy. The proposal incorporated both short and long-term ground access improvement strategies for decentralizing aviation demand at LAX to other airports in the region, specifically Ontario and Palmdale. In the short-term, SCAG and LAWA would coordinate on developing a regional fly-away system in conjunction with existing and proposed HOV improvements that would take air passengers from key locations in the region to LAX, Ontario and Palmdale. In preparing for the long-term, SCAG and LAWA would cooperate in developing high-speed ground access connections to and between airports.

The Board requested that SCAG provide LAWA with additional information and copies of existing studies, and asked that further discussions take place in order to develop more specific operational strategies through which such coordination would occur.